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Influence Of University Level Direct Instruction On Educators' Use Of Technology In The Classroom

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INFLUENCE OF UNIVERSITY LEVEL DIRECT INSTRUCTION ON EDUCATORS' USE OF TECHNOLOGY IN THE CLASSROOM

being

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by

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The research described in this thesis utilized human subjects. The thesis prospectus was therefore examined by the Human Subjects Research Committee of the Psychology Department, Fort Hays State University, and found to comply with Title 45, Subtitle A - Department of Health, Education and Welfare, General Administration; Part 46 - Protection of Human Subjects.

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Date

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Ethics Committee Chairman

ABSTRACT

Previous research regarding technology integration in education has indicated that when technology is integrated into the classroom with fidelity it can enhance educational experiences ranging from academic achievement to student attitudes toward education and student self-concept. Research has also indicated, however that despite the growing presence of technology in classrooms, it is not being effectively utilized. Further research investigating this disparity between presence of technology and integration of those technologies for student-centered learning opportunities has revealed that there are several underlying factors related to effective educational technology integration. Those factors which are considered to be most influential are (a) time, (b) teacher attitudes, (c) teacher beliefs, and (d) comfort levels regarding use of technology. These factors have also been suggested to be influenced by the level of exposure educators have to technology, insofar as, teachers attitudes, beliefs, and comfort levels have been shown to increase as the amount of exposure and formal training they receive regarding its use increases. A shift in pedagogical conceptualizations lead by the International Society for Technology in Education as, well as previous research that indicates formal training at the university level is the best means for influencing teacher's attitudes and beliefs, has lead researchers to focus primarily on how to best prepare educators to embrace and effectively integrate technology into the classroom. This burden to develop technological pedagogical content knowledge in educators has been placed primarily on institutions of higher education who are encouraged to formulate programs intended to prepare a wave of new educators who are adequately equipped to embrace and integrate new

technologies. Though contentions have been made that university level direct instruction is the most effective means to provide educators with these skills, research directly supporting these contentions and the success of such courses has not been sufficiently explored.

The present study examined the effects that receiving direct instruction at the university level on the topic of technology integration into the classroom had on teachers' ability to integrate technology into their curriculum and classroom practices. The current research also investigated the relationship between philosophies of education and integration of technology as well as the relationship between technology integration and affinity toward computer use, confidence and comfort using computers, and general school support. Also explored were the effects of levels of technology integration across level of teaching based on number of years of teaching experience and perceived scenario content. The sample for the current study was comprised of 17 individuals who were either current students or graduates of the Master in Education Program at Fort Hays State University who have completed the AEP 800 course: Introduction to Utilization of Technology in Classrooms. Of the participants, two were male and 15 were female. The variable affinity toward technology use was found to be positively correlated with level of technology integration. Additionally, participants demonstrated an ability to integrate technologies at higher levels than determined by previous research across two of the four scenarios presented. The content of the two scenarios that were found to be significant indicates that while the participants, representative of the general teaching population,

have considerable knowledge relative to technology, they are not as proficient at transferring such knowledge into instructional practices.

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INTRODUCTION

Technology is quickly emerging as a catalyst for changing the ways in which we think, gather information, and especially the ways in which we are educated. Communication and information technologies, development of Web 2.0 tools, and the availability of the internet and its many educational tools and applications have a profound ability to change the ways in which we process and share information. These technologies have modified the way we think, how we collaborate, and have also influenced the ways in which we view creativity and abstract or critical thinking. Furthermore, these developments have the potential to change the ways in which we practice formal education (Cifuentes, Maxwell, & Bulu, 2011; Hsu, Wu, & Hwang, 2007; Jacobs, 2010; McNabb, Hawker, & Rouk, 1999; Schacter, 1999; Sandholz, Ringstaff, & Dwyer, 1996; Taimin, Bernerd, Borokhovski, Abrami, & Schmid, 2011). The benefits of having these technologies, literally at our fingertips, have been explored in a myriad of studies and published works. This literature review will examine such studies, with special attention given to research on the integration of technology in the classroom setting.

Much research has been conducted regarding the effects that the integration of technology into the classroom can and does have on education. The recent influx of technology into the classroom has allowed for a vast pool of knowledge to be gathered relating the use of various technologies and teaching techniques and their effects on learning (McNab et al., 1999). Using meta-analysis to investigate more than 500 individual research studies of technology enhanced education, Kulik (1994) found that students learn more in less time when they participate in computer based instruction and

also like their courses more and have a more positive attitude in classes where technology is utilized. Kulik also discovered that students who engage in computer-based instruction score at the 64th percentile on tests of achievement placing them above students who do not receive such instruction as indicated by their score at the 50th percentile. Similar analysis by Sivin-Kachala (1998) assessing 210 research studies, indicated that students in technology rich environments demonstrate increased achievement from grades preschool through university level for both regular and special needs individuals, that they experience positive effects on level of achievement in all primary subject areas, and that in general student's attitudes toward education and their personal concept improved in instances where computers were used for educational purposes.

Thus, the current research indicates almost without exception that when technology is properly integrated, and implemented consistently, it can enhance educational experiences (Hsu et al., 2007; Jacobs, 2010; Kulik, 1994; Schacter, 1999; Sivin-Kachala, 1998). However, there is also existing research to suggest that even in instances where technology is present in the classroom, it is not being effectively utilized (Bauer & Kenton, 2005; Cole, 2000; Jacobs, 2010; Kim, Jain, Westhoff, & Rezabek, 2008; National Center for Educational Statistic (NCES), 2000; Palak & Walls, 2009). Information gathered during further investigation of these instructors, for which funding or resources do not appear to be central to the issue, reveals that there are other factors related to proper technology integration, or lack thereof.

In an effort to better illuminate why technology is not being properly integrated, Hooper and Rieber (1999) proposed a model comprised of five stages of adoption of

technology in the educational setting. These stages follow a continuum beginning with *familiarization*, the most basic stage, which is characterized by first interactions with technology and learning basic technological processes. Teachers then progress into the *utilization* phase, in which they try out new technologies but fail to adopt the technology into their curriculum practices. The next level on the continuum is *integration* denoted as the "break-through phase" which is characterized by a teachers' dependency on technologies and conscious efforts to incorporate them into the classroom setting and curriculum. The fourth stage of the model is the *reorientation* phase in which the teacher embraces technology and turns his or her focus to student-centered learning. The final level on the continuum is the *evolution* phase during which the teacher understands that the learning environment must continuously change to meet the challenges of individualized learning and works to ensure that student needs are being met through the use of various techniques and technologies. While Hooper and Rieber (2009) propose all five stages and assert that students benefit most from teachers who have reached the *evolution* phase, they contend that most teachers fail to make it past the *utilization* phase, and therefore, never reach the phase of *integration* or beyond.

Subsequently, there is much debate over the primary factors influencing teachers' willingness and ability to integrate technology into the curriculum when it is readily available. One reason for this lack of integration appears to be due to an ineptness of instructors in the area of technology integration into the classroom. According to the National Center for Educational Statistics (NCES) (2000), only one third of teachers surveyed indicated that they felt well prepared to integrate technology into their

classrooms. These statistics may reflect an indication that teacher education at the university level, in its current state, does not allow for or encourage the inclusion of technology as a vital and necessary component of curriculum (Eartmer & Ottenbreit-Leftwich, 2010). For over 20 years, the conceptualization of teacher knowledge has been based primarily on the framework proposed by Shulman (1986, 1987). Schulman (1986) defines categories of knowledge that include, content knowledge (knowledge of the subject area), pedagogical knowledge (knowledge of teaching strategies and classroom management methods), and pedagogical content knowledge (knowledge regarding how to educate unique learners in specific contexts). In addition to these widely accepted categories, Schulman (1987) also defined four less frequently acknowledged categories which include: knowledge of educational beliefs and goals, knowledge of the contexts within education (context knowledge); knowledge pertaining to the characteristics of learners, including their perceptions (learner knowledge); and knowledge of instructional materials and media (curricular knowledge). In accord with this conceptualization, knowledge and skills related to technology receive very minimal attention, as only mentioned as a component within curricular knowledge, and are regarded as a supplement to current curriculum components at best. Therefore, an unintended consequence of Schulman's definition is the indication that technology has not yet been integrated into what represents good teaching methods and practice (Fajet, Bello, Leftwich, Mesler, & Shaver, 2005). This consequence is transposed into teacher education programs as an overall lack of emphasis on the necessity of integration of technology into the classroom.

In an effort to combat this perception, additional conceptions have been presented to change and expand teacher knowledge systems to incorporate technology. This supplementary knowledge has been presented under a variety of different guises and from a number of individuals in the field. Such conceptualizations include, pedagogical technology integration content knowledge (PTICK; Brantly-Dias, Kinuthia, Shoffner, DeCastro & Rigole, 2007), technological pedagogical content knowledge (TPCK; AACTE, 2008; Pierson, 2001); and ICT-TPCK which is a strand of TPCK emphasizing relevant knowledge of communication and information technologies (Angeli & Valanides, 2009). Andgeli and Valanides (2009) contend that such models have as their foundation a common belief and understanding that adequate technology integration is reliant upon the interactions among technology, pedagogy and content. In this way, they suggest that effective technology integration necessitates both pre-service and in-service teachers to understand the technology tools, as well as how the tools, when utilized to teach content, permit for the acquisition of an understanding of difficult subjects more readily. Developing this understanding, suggests Andgeli and Valandes (2009), will demonstrate to the educators how technology can be implemented to yield meaningful student outcomes, and therefore, not only better prepare them to do so, but also encourage such integration.

In addition to these attempts at shifts in conceptualization, technology based standards have also been presented and endorsed to increase technology integration in schools in the United States. Recognizing that technological literacy has become a basic requirement of teaching, the International Society for Technology in Education (ISTE)

first published its National Educational Teaching Standards for Teachers (NETS-T) in 1998 and has since revised them as recently as 2008 to reflect changing needs in educational technology (Ertmer & Ottenbreit-Leftwich, 2010; International Society for Technology in Education, 2008). These standards are endorsed by the National Council for the Accreditation of Teacher Education (NCATE) and many state educational organizations.

The NETS-T standards are comprised of five primary components and are geared toward the contention by International Society for Technology in Education (ISTE) that "Effective teachers model and apply the National Educational Technology Standards for Students (NETS-S) as they design, implement, and assess learning experiences to engage students and improve learning; enrich professional practice; and provide positive models for students, colleagues, and the community" (International Society for Technology in Education, 2008, p 1). The five broad standards include: a) facilitate and inspire student learning and creativity; b) design and develop digital-age learning experiences and assessments; c) model digital-age work and learning; d) promote and model digital citizenship and responsibility; and e) engage in professional growth and leadership (ISTE, 2008).

Included within these standards are requirements to utilize technology to enhance traditional areas of study by exemplifying knowledge of both subject matter and technological tools. Teachers are called to facilitate experiences that advance learning, innovation, and creativity in both virtual and face-to-face environments (ISTE, 2008). Additionally, these standards suggest that teachers should demonstrate the ability to

develop, adapt, and customize learning experiences to include technology and promote individualized approaches reflective of students' diverse learning styles, needs and curiosities.

Simultaneously, the International Society for Technology in Education (ISTE) endorses student-centered technology integration and emphasizes the importance of teacher facilitation (ISTE, 2000). Evidence demonstrates that a parallel exists between the nature of an educator's technology-integrated lessons and an educator's student-centered beliefs. The constructivist pedagogy has been implied to encompass most frequently classrooms which are student-centered, dynamic, and where technology is utilized as a powerful learning tool. Research specific to the relationship between teacher philosophy of education and technology is limited. However, researchers from the University of California conducted a study which provided evidence that the utilization of computers among educators is related to constructivist practices, as well as to changes in pedagogy to a more constructivist-compatible direction (Ravitz & Becker, 2000). This research demonstrated a strong correlation between computer use and constructivist styles of teaching. Further research demonstrated that teachers who reported increased levels of computer utilization over the last five years concurrently reported considerable increase in their constructivist style of education (Ravitz, Becker, & Wong, 2000).

Coinciding with this call to instruct through multimodal technologically enhanced practices, the ITSE (2008) contends that teachers are expected to develop varied and multiple formative and summative assessments that are closely aligned with the technology standards and course content and utilize the data that is gathered to inform

and effect change in areas of both teaching and student learning. Further, teachers are expected to demonstrate competency in the skills, knowledge and work processes of an innovative professional in a global and digital society. These competencies include the ability to exhibit fluency in current technologies; communicate information to and collaborate with students, colleagues and parents using a variety of media formats; and model effective use of current and emerging digital tools when locating, analyzing, and evaluating information.

Moreover, teachers are called by these standards (ISTE, 2008) to maintain a grasp on local and global societal responsibilities and issues that arise in the evolving digital culture and must demonstrate proper ethical and legal behavior in their professional practices. This incorporates the need for direct demonstration, advocating, and modeling of safe, ethical, and legal use of technology and digital information and includes the call to provide appropriate and equitable access to digital resources and tools to all learners focusing on their diverse needs in a learner-centered fashion. These standards also place emphasis on the importance of gaining global awareness and cultural understanding through engagement with students and colleagues of diverse cultures based on the use of digital-age communication and collaboration tools. Finally, teachers are called to act as technological leaders by demonstrating proper and effective use of digital resources and tools and engaging in continuous professional improvement for application of technology in both the school and community settings.

In spite of these efforts emphasizing the importance of technological literacy, research has suggested that even among teachers who are technologically prepared, their

level of integration of technology into the curriculum is lagging. Bauer and Kenton (2005) investigated the technology usage of 30 "tech savvy" instructors. Results indicated that when teachers were experienced, highly skilled, and trained in technology, they still did not consistently integrate it into their classroom. Additionally, Palak and Walls (2009) concluded from their research that even in technology-rich schools, teachers rarely utilize technology for student-centered instructional practice, but instead utilize it primarily for administrative purposes, preparation and classroom management.

Continuing research delving into this disparity indicates that educators lack "technological pedagogical content knowledge" meaning that they are familiar with the content and have pedagogical knowledge, but lack the operational skills of technology and are unfamiliar with how technologies are to be used in the classroom setting in conjunction with the subject matter and educational approaches (Wetzel, Foulger, & Williams, 2008). Similarly, Eartmer and Ottenbreit-Leftwich (2010) contend that teachers must maintain knowledge of technology itself; must expand their pedagogical practices across the areas of planning, implementation, and evaluation processes; develop additional knowledge of the content they are teaching; and have the ability to select appropriate technologies based on student skill level and available resources. They argue that these variables complicate and make mastering technology integration much more complex and difficult than simply having knowledge about technology. Therefore, these researchers suggest that many educators fail to utilize technology in their classrooms even when technology is present and accessible, and where there is a basic understanding regarding its use and benefits.

In order to determine the factors affecting this gap between knowledge of technologies and utilization in the classroom, several studies have been conducted. These studies indicate that when technology is present and easily attainable, the four factors related to integration are: (a) time, (b) teacher attitudes, (c) beliefs, and (d) comfort levels regarding usage of technology. Hsu et al. (2007) demonstrated that the largest predictor of the successful practice of technology integration into the classroom is the teachers' belief in the effectiveness of technology based instruction. Research additionally indicates that these factors are influenced by the level of exposure that one has to technology, insofar as, teachers' beliefs, attitudes, and comfort levels appear to increase with the amount of exposure they have to technology and the amount of formal training they have regarding its use (Palak & Walls, 2009).

Currently, it is believed that formal training regarding how to effectively implement technology into the classroom is scarce and sometimes unattainable to educators at both the pre and post-service levels (Kim et al., 2008). Likewise, it has been theorized that formal education at the university level is the best means for influencing teachers' attitudes and beliefs toward the usage of technology (Bauer & Kenton, 2005). Palak and Walls (2009) concluded from their research on how teachers' beliefs affect technology integration that professional development focusing on the integration of technology can affect teachers' beliefs. Drawing from this contention, the researchers propose a shift in training and professional development of educators focusing specifically on the integration of technology into the curriculum. Synchronously, Bauer and Kenton (2005) contend that the methods that teachers incorporate into their

classrooms are a direct reflection of their training and that teacher education programs have the greatest impact on the methods that teachers incorporate into their classrooms.

Bauer and Kenton's beliefs are supported in recent findings. Specifically, Kim et al. (2008) investigated how faculty modeling of technology usage at the university level affected pre-service teachers' intent to utilize technology in their classrooms. Findings suggested a significant correlation between the variables of pre-service teachers' perception of faculty modeling of technology and pre-service teachers' intent to use such technologies upon entering the field. These results indicate, on the basis of Bandura's social learning theory, that the educational practices of teachers regarding technology is influenced by those whom they are educated at the university level. To this end, a plethora of literature has presently emerged calling for the development of preparation for pre-service teachers in the form of educational technology courses, as well as for professional development in the area of technology integration (Gronseth et al., 2010; Ham, 2010; Lei, 2009; Wetzel et al., 2008).

Research examining the impact of the inclusion of technology courses into the curriculum requirements for pre-service teachers is lacking at the present time, however, the literature suggests at least one attempt. Choy, Wong, and Gao (2009) conducted a study to examine and compare student teachers' intentions of integrating technology into their classroom during student teaching and their actual actions in the classroom setting as student teachers. The researchers examined what change, if any, in the intentions of the student teachers would occur after taking a technology course. Research measured by a five point leikert scale indicated that the participants': a) intentions to use technology

for student-centered learning increased from 3.81 to 3.86, (b) intentions to act as a facilitator of technology in class increased from 3.93 to 4.01, and (c) confidence level in carrying out a leadership role in the integration of technology in schools increased from 3.55 to 3.84. Each of these increases reflected statistical significance based on the research methods used.

In addition to these findings, however, the research by Choy et al. (2009) indicated that while student teachers participating in the study demonstrated positive intentions to integrate technology for purposes of facilitating student-centered learning, the majority of participants were unable to transfer positive intentions of technology integration into action during their student teaching. This data indicated that the actual practice of technology integration compared to the student teachers' intentions decreased significantly even after completing the technology course. The researchers suggested that this inability to transfer intentions may reflect an overall lack of experience and lack of subject matter knowledge based on the participants' positions as student teachers. They also cited classroom management issues, non-teaching duties, and diverse student needs, in addition to lack of availability of technology tools, as potential roadblocks to feeling comfortable integrating technology into their classroom during student teaching.

The aforementioned theories and research indicate that there is a significant relationship between the instruction received at the university level regarding technology usage and integration and implementation of those technologies by educators in the applied setting. However, research directly supporting this contention has not, to date, been substantially explored in an effort to confirm this theorization. Further, while

contentions have been made that teacher education programs are the facilitative agent for the effective implementation of technology into the classrooms, this effect has not been quantitatively measured or supported.

The current study examined the effect that receiving formal education at the university level had on teacher utilization and implementation in the classroom setting. This research was intended to better clarify whether or not receiving formal instruction on the integration of technology into the classroom has a significant impact on the degree of technology usage in the classroom setting. Other variables that were explored through the research included: (a) confidence and comfort using computers; (b) general school support for technology usage; (c) integration of computers into the classroom; and (d) affinity toward computer use. This research was also intended to investigate the factors influencing lack of technology integration for those individuals who are found to be integrating technology at lower levels. Finally, the relationship between philosophies of education and level of technology integration were explored.

For the purposes of the current study, it was anticipated that those individuals who had received formal training at the university level would be likely to use technology in a way that directly supports classroom learning goals when presented with scenarios that are relevant to common classroom situations (i.e., assisting students with disabilities, participation in collaborative projects, or elongated absenteeism). Research has indicated that while teachers may use technology, most of them do not make it past the utilization stage and use it primarily for administrative purposes (Bauer & Kenton, 205; Hooper & Rieber, 2009; Palak & Walls, 2009). Based on these research findings, technology use

categorized as basic or administrative acted as a baseline or expected level of technology use and technology integration categorized as sophisticated technology integration demonstrated use that directly supports classroom learning goals, thus reaching levels beyond baseline. Therefore, it was hypothesized that *individuals who had received formal training at the university level would have significantly higher levels of technology integration than the standard level determined from previous research.*

Additionally, it was hypothesized that *levels of technology integration (i.e., no technology integration, rudimentary or administrative technology integration, or sophisticated technology integration) would differ across perceived scenario content (considering both the situation presented and NETS-T Standard 1, 2, 3, or 5) and across levels of teaching (i.e., novice, intermediate, or expert)*. It was expected that levels of technology integration would differ across scenarios given that particular educational situations may be deemed more technology integration friendly. For example, it may be easier to incorporate technologies for facilitative, adaptive and creative learning purposes than for collaborative and advocacy purposes. Additionally, based on research indicating that teachers' perceptions and attitudes toward technology use are affected by familiarity with tools and pedagogical content knowledge (Palak & Walls, 2009), and centered on the premise that technology integration is affected by these factors (Hsu et al., 2007), the level (reflective of number of years) of teaching experience was examined. Integration of technology was also examined across both factors of levels of teaching and perceived scenario content to investigate any existing interaction between the two variables on level of technology integration.

Research indicates that philosophies of education influence teaching styles and classroom practices of educators at all levels (Sadker & Sadker, 2003). Additionally, previous research conducted by Ravitz and Becker (2000) demonstrated a positive correlation between computer use and participants' who reported being closely aligned with a constructivist philosophy of education. Constructivist views of education highlight a propensity toward student-centered classrooms. Of the philosophies of education presented by Sadker and Sadker (2003), the philosophies of progressivism, social reconstructionsim, and existentialism are considered student-centered philosophes, while essentialism and perennialism are considered teacher-centered philosophies of education. Thus, the current study explored which of the five philosophies of education (i.e. essentialism, perennialism, progressivism, social reconstructionism, and existentialism) were correlated with level of technology integration. Therefore, it was hypothesized that *the five philosophies of education would be significantly related to level of technology integration*. Specifically, it was predicted that the subscale of the progressivism philosophy of education would be more significantly correlated with technology integration than individuals who identify with other philosophies of education. Contrarily, it was also projected that the subscale of the essentialism philosophy of education would be least correlated with level of technology integration.

Finally, this study investigated, which, if any, of the four domains of perceptions of computers and technology (integration, support, confidence and comfort, and attitude toward computer use) were significantly related to level of technology integration. Accordingly, it was hypothesized that *the four domains of perceptions of computers and*

technology would be significantly related to level of technology integration. This hypothesis was intended to provide a deeper understanding as to which aspects of teacher perceptions of computer and technology are significantly related to technology integration.

The current research has practical implications for many individuals within the educational setting including school administrators, teachers, special education directors, school psychologists and students. The information gathered may also prove beneficial to the development and evaluation of educational technology courses. Finally, this research is intended to expand the literature and enhance the knowledge in the field of educational research.

METHODOLOGY

Participants

Approval to utilize human subjects was first sought from the Institutional Review Board (IRB) at Fort Hays State University through the submission of an application. See Appendix A for the IRB Application. The IRB determined that the study was exempt from review. The IRB Approval Letter can be found in Appendix B. Participants included a sample of individuals from a population of current students and graduates of the Master in Education program at Fort Hays State University who have taken the AEP 800 course: Introduction to Utilization of Technology in Classrooms. Participants were recruited based on a database of students who have taken the aforementioned course as kept by Dr. Robert Moody, professor of the AEP 800 course at FHSU. This database includes individuals who have received or are working toward Master Degrees from the College of Education at FHSU. Because Dr. Moody's database is exclusive to individuals who have taken the AEP 800 course and because this course is required for all individuals seeking master level degrees in education, transcripts were not obtained.

The sample population consisted of 126 individuals from the database and an invitation to participate in the survey was sent to each of them by email. After two additional requests for participation were emailed, a total of 17 participants completed the survey in its entirety reflecting a response rate of 13.49%. While response rates of surveys administered via email or the internet vary wildly, a typical response rate for such surveys is said to be between 14 and 30 percent (Leong & Austin, 2006). Of the 17 participants, 2 or 11.8% were male and 15 or 88.2% were female. Among the participants, the average reported teaching experience in years was 8.94, with experience

ranging from 1 to 23 years. A breakdown of the degrees obtained by the participants indicated that 2 or 11.8% of the participants had completed or were seeking a degree in English as a Second to Other Language, while 4 participants or 23.5% were affiliated with the Instructional Technology degree. Additionally, 3 participants or 17.6% of the sample population were the statistics associated with both individuals who had obtained or were seeking Library Media Specialist degrees or Reading Specialist degrees, while 5 of the participants or 29.5% of the sample population had obtained or was working toward a degree under the category of Transition to Teaching. Participants reported the number of students they have per class ranged from 8 to 25 and responses yielded an average of 18.12 students per class. Data gathered regarding number of computers available in the classroom for instructional use demonstrated a range of availability from 0 to 28 computers and indicated that the mean availability of computers was 8 computers per class suggesting that on average, computers are available for 44.44% of the students.

Procedures

All eligible participants were contacted and issued a recruiting script via email based on the database of students kept by Dr. Moody. The recruiting script can be viewed in Appendix C. They were then presented with an informed consent form, as shown in Appendix D, in which the option of clicking "yes" on the online survey page indicated the participants' consent to participate and the option of clicking "no" indicated that they did not desire to participate and resulted in the participant being directed to an alternate page thanking the participant for his or her consideration. Following the obtainment of informed consent, all consenting participants were given access to a web-

based survey to determine teachers' level of integration of technology in the classroom. The survey was created using the Fort Hays State University Survey System.

To obtain the desired information, several measures were used. First, participants were presented with four scenarios that prompted them to retrieve information and knowledge that is perceived to be acquired from the AEP 800 course. This measure was intended to gauge the extent to which the participants are integrating technologies in their classroom based on forming scenarios that are relevant to common occurrences within the field of education. Participants were asked to disclose, in free response from, what actions they would take in implementing best practices for each of the four scenarios based on students within the grade level that they currently teach. These scenarios specifically align to course objectives of the AEP 800 course and are also reflective of the International Society for Technology in Education's National Educational Teaching Standards for Teachers (ISTE, 2008).

The first scenario read:

> One of your students, Jason, has been ill for three days and you have just received word from his mother that he has mono and will most likely be missing several more days of school. You are concerned that he may fall behind his peers due to his extended absence. How would you go about getting information home to ensure that Jason remains up to date with assignments and develops an understanding of the material until his return?

The opening scenario was intended to be aligned with NETS-T standard one and Class Objective one which states that the teacher should demonstrate the ability to, "Facilitate

and Inspire Student Learning and Creativity: Teachers use their knowledge of subject matter, teaching and learning, and technology to facilitate experiences that advance student learning, creativity, and innovation in both face-to-face and virtual environments" (ISTE, 2008; Moody, 2011).

The second scenario presented to the participants read as follows:

> Sandra has been diagnosed with dyslexia and is on an IEP for reading but is eager to learn. She is having difficulty keeping up with course material because her reading abilities are so far below that of her peers. What tools or strategies might you implement to supplement Sandra's disability and assist her in achieving as much success as possible?

The succeeding scenario aligns with NETS-T standard two and class objective two which contends that the educator should, "design, develop, and evaluate authentic learning experiences and assessments incorporating contemporary tools and resources to maximize content learning in context and to develop the knowledge, skills, and attitudes identified in the NETS-S" (ISTE, 2008; Moody, 2011).

The third scenario presented to each participant read:

> Your district has entered into a collaborative agreement with neighboring schools to engage in a service learning project for your communities that will raise awareness about the importance of recycling. What tools or strategies might you use to enhance the project's chance of success?

This third scenario is intended to measure whether the teacher demonstrates compliance with NETS-T standard three and class objective three, which state that the teacher should

"model digital-age work and learning by exhibiting knowledge, skills, and work processes representative of an innovative professional in a global and digital society" (ISTE, 2008; Moody, 2011).

Finally, the fourth scenario addressed to participants read "You have just been informed by your Superintendent that the district budget for the purchase of software has been cut completely for this school year. What do you plan to do to negate the effects of zero technology funding?" This scenario is intended to gauge whether or not the teacher demonstrates a solution that would align with NETS-T standard five and class objective five which state that the teacher should "engage in professional growth and leadership by continuously improving professional practice, modeling lifelong learning, and exhibiting leadership in school and professional community by promoting and demonstrating the effective use of digital tools and resources" (ISTE, 2008; Moody, 2011).

The resulting responses were coded from 0 to 2 to demonstrate the level at which the participants cited that they would integrate technology into these representative classroom scenarios. For the purposes of this study, technology integration was defined as "the incorporation of technology resources and technology-based practices into the daily routines, work, and management of schools" as this is the definition set forth by the National Center for Education Statistics (NSES, 2002, p 75). A score of 0 indicated that the participant's response included no mention of technology use or integration. No mention of technology use or integration was defined as failing to include any such technologies or their uses in the response issued. A score of 1 indicated that the participant's response included rudimentary or administrative uses of technology only. A

rudimentary or administrative use of technology was defined as usage of technology that makes school life more efficient for the teacher such as: a) sending and receiving emails to set up meetings or share announcements; b) recording grades, attendance, and assessments; or c) posting word documents or creating worksheets. Finally, a score of 2 indicated that the participant's response included what was operationally defined as sophisticated technology integration. Sophisticated technology integration, for the purpose of this study, being defined as responses that indicated the utilization and integration of technologies into the curriculum and using technology in a way that directly supports classroom learning goals. Examples of this level of technology integration might include: a) helping students locate resources and execute procedures such as typing essays or developing presentations and encouraging students to produce through various forms of media; b) encouraging students to solve problems, communicate, and think critically and creatively; c) using technology to encourage students to explore and learn content more deeply; d) utilizing assistive technologies for individuals with special needs; and e) displaying a firm understanding of available technologies and their potential uses and benefits. A scenario scoring rubric was developed according to these qualifications and can be found in Appendix E.

In an effort to ensure accurate measurement of the interpretation and coding of participant responses, interrater reliability was established. Accordingly, two second year school psychology graduate students and the researcher partook in a one hour training session that presented and demonstrated proper scoring of the operationally defined methods of coding. Six sample scenarios and responses were presented to the trainees.

These scenarios and responses were not actual participant responses obtained during the study, but rather, were contrived examples used for training purposes only. The trainees then read over the scenarios and scored the responses based on the predetermined scale. During this time, discrepancies and contradictions in scoring were discussed. Scenario sample responses can be found in Appendix F. When a 92% consensus was obtained between the three scorers, the scoring of participants' responses began. By utilizing these scenarios that aligned with the AEP 800 course goals and the NETS-T standards, the researcher hoped to acquire insight into the actual application and integration of technology into the classroom by teachers in their current settings and practice. The scoring sheet utilized by the raters of the self-constructed scenarios can be found in Appendix G.

Next, participants completed The Inventory of Philosophies of Education (Sadker & Sadker, 2003) as represented in Appendix H. This scale measures five educational philosophies including essentialism, perennialism, progressivism, social reconstructionism, and existentialism on a continuum. According to Sadker and Sadker (2003), educators who fall under the category of essentialism strongly emphasize basic skills, primarily reading, writing, science, math, history, language and geography. Perennialism, they state, encompasses beliefs based on rationality as the primary purpose of education, stresses the Great Books, and that there are essential truths that are universally true and reoccurring. Individuals who follow a framework of progressivism stress the importance of democracy, practical activities, school and community relationships, and place primary influence on student needs and student-centered

learning. Educators who are categorized as followers of social reconstructionism attempt to improve the quality of life for students, actively strive to reduce the chances of conflict, and make concerted efforts to create a world that is more humane (Sadker & Sadker, 2003). Finally, teachers who associate primarily with the existentialism philosophy of education stress the ability of individuals to determine the nature and course of their own lives and emphasize the importance of personal decision making.

The measure utilized a Leikert scale with responses ranging from "agree strongly" to "disagree strongly" and included questions intended to gauge educational philosophies such as "The curriculum of the schools should be subject-centered. In particular, student learning should be centered around basic subjects such as reading, writing, history, math, and science" and "Many students learn best by engaging in real-world activities rather than by reading" (Sadker & Sadker, 2003). The results from this measure were used to compare technology integration across educational philosophies and provided information as to whether or not technology integration is reflective of educational philosophy. According to one of the authors of the survey, the measure has content validity for pre-service teachers (Palak & Walls, 2009). For the purposes of this study, it was assumed that the content validity carried over to in-service teachers and that the measure produced accurate representations of philosophies of education for the population of teachers surveyed.

Next, participants completed The Perception of Computers and Technology scale as created by Hogarty, Lang, and Kromrey (2003). This measure utilizes teachers' self-reported use of technology in the classroom to highlight their perceptions considering the

following variables: (a) attitudes toward technology use, (b) teacher confidence and comfort, (c) technical support, (d) general school support, (e) ratio of computers to students, (f) teacher software use, (g) student software use, and (h) instructional strategies. These variables fit within four broad categories or domains which include integration; support; preparation, confidence and comfort; and attitude toward computer use (Hogarty et al., 2003; Palak, 2004). See Appendix I to view the Perception of Computers and Technology scale in its entirety.

The first domain, integration, is measured in three sections: (a) instructional strategies implemented by the teacher when integrating technology, (b) software utilized by teachers and students for educational activities, and (c) teachers' use of computers for various purposes. The second domain is intended to measure: (a) teacher comfort and confidence in using computer, and (b) teacher preparedness for computer use. Support is measured in the third domain by assessing the following elements: (a) general school support and (b) available technical support to teachers. The forth domain considers the general attitudes, affinity and aversion, associated with utilizing computers for instructional purposes and is intended to gauge teacher's views on the importance of integrating technology into educational practices and the impact of technology on student learning. Finally, this measure was also used to gather demographic information from the participants (Hogarty et al., 2003; Palak, 2004).

The Perceptions of Computers and Technology survey was examined and validated as an instrument to measure teachers' perceptions in an article published in 2003 (Hogarty et al., 2003). The authors utilized correlational and factor analysis to

investigate the psychometric characteristics of the survey. Factors were extracted based on the amount of variance accounted for by each factor. Additionally, a Cronbach's Alpha was calculated for all score estimates to examine the reliability of scores. Further, exploratory factor analysis conducted within each section of the instrument yielded composite scores indicating acceptable levels of reliability (with alpha coefficients ranging from .74 to .92). Finally, the validity of the scores was supported by the relationships between external variables and the subscales of the instrument.

Results from the scenarios and individual inventories were calculated and collective comparisons were made to gather information regarding the effect that taking a course at the university level on integration of technology into the classroom has on the teachers' level of actual technology integration.

RESULTS

In preliminary data computation, inter-rater reliability was established between three raters for the scoring of the level of technology integration across the 4 self-constructed scenarios. Two Fort Hays State school psychology graduate students partook in a one hour training session with the researcher at which time 6 sample responses for each of the four scenarios were scored. These sample responses were self-contrived, used only for training purposes and were separate from those provided by the participants. A 92% consensus level was reached across all three scorers and a 100% consensus level was reached where at least two scorers agreed on any given response for the sample responses. When scoring actual participant responses, the score that was used for data analysis was the response that met a consensus across at least two scorers which accounted for 100% of the responses, with an overall scorer agreement rate of 85%. The responses were scored from 0 to 2 reflecting the level at which the participants indicated that they would integrate technology into each of the scenarios. A score of 0 indicated that the response included no mention of technology use or integration, while a score of 1 was indicative of a response that included administrative or rudimentary uses of technology only and a score of 2 was reflective of a response that included sophisticated technology integration which involves integration into the curriculum and using technology in a way that directly supports classroom learning goals. The scoring used for scenario 4 was slightly modified due to the nature of the question. In this instance, a score of 2 reflected the participant's ability to display a firm understanding of available technologies and their potential use through the mention of the utilization of free software programs and available websites or tools.

Hypothesis (a)

To begin data analysis, a one sample t-test was utilized to compare participants' achieved level of technology integration on each of the four scenarios compared to the predetermined baseline score of 1. Results indicated that individuals who received formal training scored significantly higher than the baseline for scenario 4 (M = 1.58, SD = .62), (t (16) = 3.92, $p < .01$). Similar results were found for scenario 3 with a difference approaching significance (M = 1.41, SD = .87), (t (16) = 1.95, $p = .07$). However, no significant differences were found between participants' achieved level of technology integration and the baseline score for scenario 1 (t (16) = 1.56, $p > .05$) and scenario 2 (t (16) = .77, $p > .05$). Table 1 presents the means and standard deviations for each of the previously mentioned scenarios.

Hypothesis (b)

In order assess the effect of scenario content and levels of teaching experience on level of technology integration, a two-way analysis of variance was conducted[1]. A two-way analysis of variance has the capacity to yield reasonably accurate results with a moderate sample size which is considered 30 subjects (Green & Salkind, 2005). Therefore, the results of this analysis should be interpreted with caution due to the limited number of participants. The dependent variable utilized for the two-way analysis of variance was a technology integration rating ranging from 0 to 2. The within-subjects factor was scenario content with four levels (scenario 1, scenario 2, scenario 3, scenario

[1] Note that the originally planned analyses could not be conducted because responses on the variable of school level taught were not reported in a consistent manner.

4) and the between-subjects factor was level of teaching with three levels (novice, intermediate and advanced). The scenario content main effect, level of teaching main effect, and scenario content x level of teaching interaction effect were tested using the multivariate criterion of Wilks's lambda (Λ). Results indicated no significant main effects for the variables of scenario content (Λ = .80, F (3,12) = 1.03, p > .05) and level of teaching (F (2,14) = 2.22, p > .05). The scenario content x level of teaching interaction was also not significant (Λ = .60, F (6,24) = 1.54, p > .05). Table 2 provides a breakdown of participants' level of teaching.

Hypothesis (c)

Limited data resulted in additional modifications to anticipated analysis. Multiple regression analysis procedures were intended to be utilized to examine the relationship between level of technology integration and the five Philosophies of Education, as well as to investigate which combinations or components of individual perceptions of computers and technology are most predictive of technology integration. Unfortunately, due to limited number of participants, the recommended ratio of sample size to predictor variables was not achieved (Mertler & Vannatta, 2010). Conducting multiple regressions with less than adequate sample size results in an unreliable equation with limited or inaccurate predictive power. Consequently, Pearson correlation coefficients were selected to analyze these variables based upon the robustness of the test and ability to produce sound results despite small sample sizes (Warner, 2008).

Pearson correlation coefficients were then utilized to examine the relationship between level of technology integration and the five Philosophies of Education. Level of

technology integration was calculated by summing the participants' resultant scores on all four scenarios. Thus, level of technology integration scores ranged from a score of 0 to a score of 8, least amount to greatest amount of demonstrated technology integration, respectively. Results demonstrated that there was no significant correlation between participants' level of technology integration and any of the five Philosophies of Education, indicating that a significant linear relationship does not exist between level of technology integration and any of the following philosophies of education: Essentialism (r (15) = .08, p > .05), Perennialism (r (15) = .03, p > .05), Progressivism (r (15) = .10, p > .05), Social Reconstructionism (r (15) = -.04, p > .05), and Existentialism (r (15) = .03, p > .05).

Hypothesis (d)

Additionally, Pearson correlation coefficients were calculated to examine the relationship between participants' level of technology integration and several of the sub-scales from the Perceptions of Computers and Technology scale. Results indicated that there was a strong positive correlation between participants' level of technology integration and Affinity Toward Computer Use (r (15) = .56, p < .05), indicating a significant linear relationship between the two variables. However, no correlation was found between participants' level of technology integration and Confidence and Comfort Using Computers (r (15) = .41, p > .05), General School Support for Technology Usage (r (15) = -.19, p > .05), or Integration of Computers into the Classroom (r (15) = .40, p > .05), suggesting that a significant linear relationship does not exist between participants' level of technology integration and these three sub-scales.

DISCUSSION

The purpose of the current study was to investigate the effect that receiving formal education at the university level has on teacher utilization and implementation of technology in the classroom. This study was developed partially in response to the contentions made in previous research that that formal education at the university level and professional development are the best means for influencing teachers' attitudes and beliefs toward the usage of technology (Bauer & Kenton, 2005 and Palak & Walls, 2009). The research that has been gathered is intended to better clarify whether or not receiving such formal instruction on the integration of technology into the classroom at the university level has a significant effect on the level of technology usage in the classroom. Information was also gathered regarding technology integration and: (a) confidence and comfort using computers; (b) general school support; and (c) attitudes toward computer use. Additionally, the present study examined the relationship between philosophies of education and level of technology integration in the classroom.

In a broader sense, the current study was intended to provide assistance in evaluating the educational technology course currently being taught at Fort Hays State University. The information gathered was intended to highlight strengths and weaknesses in the current program and provide insight and direction for future course development both at FHSU and at other institutions of higher education. Moreover, the research was intended to expand available literature in the area of technology integration in the classroom while providing information on how to most adequately prepare educators to integrate technology effectively into the educational setting.

Furthermore, the current research also has practical implications for many individuals within the educational setting including school administrators, teachers, special education directors, school psychologists and students. In addition to the previously addressed benefits to the implementation of technological educational tools, when used appropriately technology has been shown to be more cost effective in improving student achievement than class size reduction, increased instructional time, and cross age tutoring programs (Mann, Shakeshaft, Becker, & Kottkamp, 1999). Students and teachers may benefit from an enriched classroom setting, and students with special needs have shown more significant rates of improvement when technological educational learning tools are used (Schacter, 1999). This research was conducted primarily in the hopes that it would enhance knowledge in the field of educational research and enrich educational opportunities and experience for all students.

In an effort to address these areas of interest and investigation, four hypotheses were developed. The first hypothesis was that individuals who have received formal training at the university level would have significantly higher levels of technology integration than the standard level determined from previous research. The results of this hypothesis indicate that those who received formal training at the university level demonstrated significantly higher levels of technology integration across two of the four scenarios when compared to the predetermined baseline score of one which indicates that the teacher has reached the utilization stage of technology.

The fourth scenario was intended to demonstrate compliance with NETS-T standard five and class objective five which states that the educator should "engage in

professional growth and leadership by continuously improving professional practice, modeling lifelong learning, and exhibiting leadership in school and professional community by promoting and demonstrating the effective use of digital tools and resources" (ISTE, 2008; Moody, 2011). This scenario required the participant to discuss how he or she would negate the effects of zero technology funding in his or her district. Data analysis for this scenario revealed significant findings when comparing level of technology integration to the predetermined baseline score of one. This significant finding indicates that when participants were asked to demonstrate knowledge and use of free and available resources to combat zero technology funding, they were able to do so at a rate significantly higher than the predetermined baseline score of 1.

The results of data analysis for Scenario 4 support the hypothesis that those individuals who have received university level direct instruction on the integration of technology into the classroom integrate such technologies at a higher level than the previously determined baseline score of 1. The significant results on this scenario could be reflective of the participants' probability to be experiencing a climate of zero technology funding at the present time. Insofar as, with the current state of technology funding, it is very likely that the participants have already been exposed to the presented situation and have developed strategies to combat this deficit in the educational setting making this scenario one that they can relate to on a more realistic and personal level. Additionally, it should not go without recognition that all of the tools and resources presented and used in the AEP 800 course, with the exception of the computer and internet, are free access downloads, materials or websites. The inclusion of only free

resource materials in the classroom would likely increase the knowledge base and the propensity for educators who have taken the class to use such free resources and could be reflected by the significant results found for this scenario.

The third scenario reflected the use of technology, strategies and tools to enhance the chance of success when collaborating and engaging in a service learning project with the participants' neighboring schools. This scenario was intended to gauge whether or not the educator exhibits compliance with NETS teaching standard three and class objective three which indicates that educators should "model digital-age work and learning by exhibiting knowledge, skills, and work processes representative of an innovative professional in a global and digital society" (ISTE, 2008; Moody, 2001). Analysis of this particular scenario resulted in technology integration levels that were approaching significance in comparison to the predetermined baseline technology score of one. These results suggest that when demonstrating ability to utilize technology for the purposes of communication and collaboration in a global and digital society, individuals who have received university level direct instruction on the integration of technology into the classroom integrate technology at a marginally significant level when compared with the predetermined baseline score of one.

The results obtained on Scenario 3 were in support of the initial hypothesis. In comparison to the scenarios that were not found to be significant, it could be suggested that the target demonstrated skills for this scenario were most closely aligned with the format of and information presented in the AEP 800 course. The Introduction to Utilization of Technology in the Classroom course is available only in the online format

resulting in a need for virtual communication. The course materials and grades are all provided online through a Ning website, and moreover, Skype, Facebook, GMail, Flash Meetings and blogging are all technologies used for communicative purposes throughout the semester long course. Additionally, all projects completed for the course are developed and presented using free online or web based programs and tools including Wiki Spaces, LovelyCharts, ScreenCast-O-Matic, Google Apps, and Yola Websites. Throughout the course, the students engage in videoconferencing, blogs and forum discussions, video presentations, website development and other means for integrating technology into their projects indicating that the skills elicited by Scenario 3 are closely aligned with those skills most practiced during the AEP 800 course at FHSU.

The first scenario which highlighted a situation in which a student would be missing several days of school due to illness, challenged the respondent to consider ways to help the student understand the material provided within the classroom and remain up to date with assignments by utilizing various technological means. This scenario was intended to align with NETS teaching standard one and Class Objective one that states teachers should demonstrate an ability to "Facilitate and Inspire Student Learning and Creativity: Teachers use their knowledge of subject matter, teaching and learning, and technology to facilitate experiences that advance student learning, creativity, and innovation in both face-to-face and virtual environments" (ISTE, 2008; Moody, 2011). This scenario was intended to entice the participants to demonstrate utilization of technology that would facilitate student centered learning and highlighted the area of virtual-communication and creative pedagogy to allow the absent student to participate

and progress in the educational environment. The results of the analysis indicated that teachers who have received university level direct instruction did not integrate technology at a significantly higher level than the predetermined baseline score of one. This suggests that when respondents were asked to integrate technology into their pedagogical practices by providing curriculum information in a virtual environment, they provided responses indicating they were not, overall, integrating technology into their curriculum or using it in a way that directly supports classroom learning goals. This result is reflected by common answers provided on scenario one such as talking to or emailing the student's parents, sending the student's assignments to the office to be picked up, and offering to go to the students' home to tutor the student and drop off assignments, with no mention of sophisticated technology use.

Upon investigating the responses to Scenario 1, it was discovered that three out of the five respondents who received a score of 0 offered to personally go to the student's home to provide tutoring but did not mention technology. In the event that the time and resources were available to provide individualized tutoring to the student, technology usage may be viewed as an inferior method of instruction. While investigation of technology integration was the goal of this study, the answers provided by these individuals regarding private tutoring were not properly controlled for when developing Scenario 1. Thus, given the small sample size obtained, these scores of 0 may have had a significant impact on the data as a whole.

The second scenario emphasized the need for individualized educational strategies and the use of assistive technologies to support a student with dyslexia and help

her achieve success in her educational goals, primarily in the area of reading. Concurrently, it was aligned with NETS teaching standard two and class objective two which contends that educators should "design, develop, and evaluate authentic learning experiences and assessments incorporating contemporary tools and resources to maximize content learning in context and develop the knowledge, skills, and attitudes identified in the NETS-S" (ISTE, 2008, Moody, 2011). Analysis conducted on this scenario and level of technology integration yielded results that were not significant. This suggests that teachers who have received university level direct instruction in the area of technology integration do not integrate technology in situations where they are called to specifically design education based on the individual needs of the student at a significantly higher rate when compared to the previously determined baseline score of one.

Several of the responses to Scenario 2 indicated that accommodations and modifications would be made for the student but did not provide specific examples that included technology. Additional responses referenced an Individualized Education Plan and contacting or using the resources of special education instructors to assist with the student's needs. These responses may reflect a general belief that modifications and accommodations are a special education function and not a function of regular education. Those who received a score of 2 on their responses included technologies such as: Playaway technology; books on tape, textbooks available online or purchased in MP3 format; I-Pad applications; educational websites and games aligned with student's interests; and audio/video files aligned with the curriculum available on class websites.

The second hypothesis examined through this study was intended to explore the effect of scenario content and levels of teaching experiences on level of technology integration. It was hypothesized that levels of technology integration will differ across perceived scenario content and across levels of teaching experience. Results suggested no significant main effects for either of the variables of scenario content and level of teaching. Additionally, the interaction between scenario content and level of teaching was not indicative of a significant relationship. Thus, the hypothesis was not supported suggesting that levels of technology integration do not differ significantly across scenario content or across levels of teaching experience. Moreover, these results indicate that the differences in means for demonstrated technology integration between scenario content do not vary depending on level of teaching.

The third hypothesis established for this research explored the relationships between technology integration and the five Philosophies of Education to determine which, if any, were significantly related to technology integration into the classroom. The hypothesis was stated as such: the five Philosophies of Education will be significantly correlated with technology integration in the classroom. Specifically, it was predicted that the subscale of progressivism would yield the strongest correlation while essentialism would be the least related. Data analysis demonstrated no significant correlation between participants' level of technology integration and any of the five Philosophies of Education. However, as predicted, progressivism did yield the strongest relationship, while perennialism and existentialism were reflective of the weakest positively correlated relationship. Essentialism demonstrated the second highest

correlation between philosophy of education and technology integration while reconstructionism was inversely related and yielded the third strongest relationship. This negative relationship existing between reconstructionism and technology integration indicates that the higher a participants' affinity toward the reconstructionsim philosophy, the less likely the participant is to integrate technology into the classroom.

Progressivism was predicted to be strongly correlated with technology integration as it is considered to be a student-centered philosophy driven by the curiosity, concerns, and real-world experiences of students. Individuals who have a strong propensity toward the progressivism philosophy tend to use more innovative and creative teaching methods and form the curriculum around real life experiences, abilities and interests of their students while encouraging cooperation and exploration (Sadker & Sadker, 2003). Accordingly, one could expect that the progressive teacher would be more likely to integrate new technologies into the classroom than individuals with more concrete teaching styles. The prediction made that the philosophy of essentialism would be least correlated with technology integration was not supported. This prediction was made on the premise that essentialism is a teacher-centered philosophy of education and furthermore, that essentialists gravitate toward a more traditional or back-to-basics approach and focus on the attainment of knowledge through core courses in traditional educational disciplines.

The fourth hypothesis, the four domains of computers and technology will be significantly correlated with the integration of technology into the classroom, investigated whether or not the domains of perceptions of computers and technology are

related to participants' measured ability to integrate technology into the classroom. Four sub-scales were explored through this hypothesis: Affinity Toward Computer Use; Confidence and Comfort Using Computers; General School Support for Technology Usage, and Integration of Computers into the Classroom. Results of data analysis suggested that a strong positive correlation exists between participants' level of technology integration and Affinity Toward Computer Use. This relationship suggests that the more affinity an individual has toward computer use the more likely that individual will be to integrate technology into the classroom. There was not a significant relationship found between technology integration and the participants' Confidence and Comfort Using Computers, General School Support for Technology Usage, or Integration of Computers into the Classroom as measured by the Perceptions of Computers and Technology scale. The results of these correlations indicate that these factors do not have a significant relationship with technology integration, and in fact, General School Support demonstrated a negative relationship with technology integration.

Results from the investigation of technology integration across perceived scenario content suggest individuals who have received university level direct instruction on the integration of technology into the classroom are integrating technology at significantly higher levels than shown in previously determined research in two of the four situations. Outcomes of this examination indicate that participants demonstrated technology integration in response to NETS teaching standard five which calls for the teacher to exhibit leadership and promote effective use of digital resources and tools and NETS teaching standard three which calls for the teacher to exhibit knowledge, skills and work

processes that are representative of innovative professionals in a digital society (ISTE, 2008).

Upon further investigation of the scenario content and answers provided, it could be contended that while teachers may acquire or have the knowledge about technology, they are not as proficient at transferring that knowledge into their instructional practices, supporting similar conclusions made in the research of Bauer and Kenton (2005). While participants were able to demonstrate knowledge of the tools and resources available, they were not as proficient at applying the knowledge of technology in the scenarios which required them to demonstrate how they would use the tools to assist students in specific situations (i.e. student with dyslexia and student experiencing extended absence). The results of the current study support the contentions made by previous research that educators lack "technological pedagogical content knowledge" even when familiar with both available technology and pedagogical knowledge (Wetzel et al., 2008). Concurrently, the results of this study confirm once more the contentions made by Hooper and Rieber (1999) in their research that suggests teachers often do not make it past the stage of utilization to that of integration and beyond. Finally, the current research is also reflective of the findings of Choy et al. (2009) who found that while teachers who completed a technology course demonstrated intentions to integrate technology to facilitate student-centered learning, the majority of participants did not transfer these intentions into action in their teaching practices.

The examination of the effect of scenario content and level of teaching experience on level of technology integration demonstrated that the variables were not related.

Previous research has indicated that varying levels of teaching experience result in varying teaching practices. Specifically, Berliner (1986) found that experts are typically more efficient in their educational practices and that there are differences in emotional states across levels of teaching experience. Antithetically, results from the current study did not indicate significant differences in technology integration across levels of teaching experience or across perceived scenario content.

The investigation of the influence of philosophies of education on technology integration yielded no significant relationships. Reflecting the research of Ravitz and Becker (2000) who contend that a correlation exists between student-centered or constructivist views of learning and computer utilization, it was predicted that a significant correlation would exist between the student-centered philosophies of education (progressivism, social reconstructionism, and existentialism) as developed by Sadker and Sadker (2003). No correlation was found between any of the five philosophies of education mirroring findings reported in a study conducted by Judson (2006). This researcher observed the technology integration of 32 classroom teachers who had taken at least one university level course or workshop which focused on the use of technology integration in the classroom and investigated teacher ability to integrate technology in comparison to their beliefs about what constitutes quality instruction, specifically investigating the constructivist view. Results from this study indicated that teacher beliefs pertaining to quality instruction do not necessarily resonate in educational practices when integrating technology into the classroom (Judson, 2006).

The results of the analysis conducted on the four sub-scales of the Perceptions of Computers and Technology scale demonstrated a strong correlational relationship between level of technology integration and Affinity Toward Computer Use. This finding parallels the work of Palak and Walls (2009) and Hsu et al. (2007) who found that one of the four primary factors related to technology integration is teacher attitudes and beliefs regarding the usage of technology and its effectiveness. Contrarily, however, these researchers also suggest that comfort levels regarding usage of technology are among the primary factors influencing technology integration. This contention appears in contrast in the current research where no correlation between technology and Confidence and Comfort Using Computers was found. A correlation was not present among technology integration and General School Support for Technology Usage which is contrary to work by Bitner and Bitner (2002) who list support as one of their Eight Keys to Success for the integration of technology into the classroom. Bitner and Bitner (2002) contend that support must be onsite, ongoing and should be provided in both the area of technology and curriculum to ensure integration of technology into the classroom. Finally, no correlation was found between the measure of technology integration developed by the researcher and the sub-scale of Integration of Computers into the Classroom. The lack of correlation here could be due to a misalignment in definition regarding technology integration and could also be related to lack of magnitude of this small scale study.

Limitations

There are several notable limitations to the data gathered and the inferences drawn

from the current research. Most notably is the small scale of the study as represented by a very small sample size. Results obtained from information provided by a total of 17 participants leads even the least inquisitive reader to question the validity of the findings. A widely accepted historical guideline for minimum number of suggested participants for associational designs is 30 participants (Gliner, Morgan, & Leech, 2009). Unfortunately, due to the constraints placed on those available in the population and the low response rate associated with online surveys, this standard number of participants was not met (Green & Salkind, 2005). It is possible that with the acquisition of more participants, the results of the statistical analysis could yield different results than those presented here. Finally, only two or 11.8 percent of the participants were male, indicating that they were underrepresented in the sample population as statistics gathered in 2010 by the United States Bureau of Labor Statistics indicate that 18.1% of elementary and middle school teachers are male while 43.2% of secondary school teachers are male (2010).

The reliability and validity of self-report measures is also frequently questioned. Researchers Willis, Thompson and Sadera (1999) who conducted research specifically on the effectiveness of surveys as a measure of technology integration indicate that too much educational technology exploration is reliant upon surveys which may not be the most effective or accurate measure of technology integration. Simultaneously, much research is available supporting contentions that while teachers may profess to engage in student-centered practices and have student-centered beliefs, these beliefs resonate in inconsistent practices (Mayer & Goldsberry, 1987; Raymond, 1993; Simmons et al., 1999). While it

is noted that direct observation of teachers in the classroom would undoubtedly produce a more accurate and precise measure of technology integration, this was not a plausible option for the research at hand. Additionally, obtaining the personal views of technology integration was the primary goal of the researcher. For instance, it is unlikely that the expression of how each participant would approach all of the four specific situations presented in the scenarios could have been obtained through direct observation. Therefore, self-report measures were the most appropriate and conceivable means for gathering participant information in this instance.

The questionable reliability and validity of self-constructed measures also surfaces as a limitation of the current research. The construct validity of the self-constructed scenarios may be questioned as it was developed without gathering sufficient information to determine validity among participants. In retrospect, the construct validity of the self-constructed surveys could have been increased by gaining more input from educators currently in the field to establish external validity and to ensure that the scenarios created were more closely aligned with real-world situations. Additionally, to increase the construct validity, a pilot study could have been utilized to establish the strength of the scenarios and their ability to measure what was intended.

Lastly, it should be recognized that the researcher rather hastily made the assumption that all participants had computer technology and therefore, access to the utilization of various technological tools and means. Although only one of the participants indicated in their responses that they did not have access to at least one computer or the internet in their classroom, the degree to which participants had access to

various technologies is unknown. Additionally, it is possible that even with the evidenced computer access afforded to participants, that these participants do not have access to many online resources due to restraints and restrictions put on ability to download or even access to websites or tools available online. In many educational setting, safeguards restricting internet use and the use of some invaluable educational tools are placed on computers associated with the school district, thus limiting the abilities of instructors to access these tools and programs.

Practical Implications and Future Research

The findings of the current research have practical significance to the field of education as a whole as well as to the education department at Fort Hays State University specifically. The results of this research indicate that there is still work to be done in the area of finding the best means to influence teachers to integrate technology into the classroom. While it appears university level direct instruction is a step in the right direction, participants in this study, representative of the general teaching population, are still not answering the call to integrate technology into the classroom for student-centered learning purposes and have not integrated it into the curriculum at the present time. The supposition for university level direct instruction and professional development in the area of technology integration into the classroom is to move beyond training educators in the application of technological tools. The goals of technology integration would be best met by teaching individuals at the university level and through professional development *how* to integrate technology into the curriculum through student-centered practices and to provide more practical implications for its use.

The current research further supports the contentions that even when knowledge of technological tools is present, educators may not have the ability to integrate these tools into the classroom. Therefore, a future direction for technology integration courses at FHSU and elsewhere should be to focus primarily on student-centered instructional strategies that allow for or even demand the use of technology. That is, technological instructional classes should highlight the actual application of the technologies in a classroom setting as opposed to knowledge about the technologies to ensure transference of knowledge into application. In this way, it is hoped that pre-service teachers will then have both the ability and the capacity to gain not only knowledge of technology but technological pedagogical content knowledge, which allows for an understanding of the interactions among pedagogy, content, and technology. It should be noted that the course upon which this study was based was in introductory course on the utilization of technology in the classroom aimed at meeting a broad range of teacher needs. Consequently, content focus was not the primary emphasis of the course. Perhaps future courses could be developed that are content-area specific and thus provide more in-depth training on how to integrate technology into the core curriculum, better preparing teachers to do so in their educational practice.

There remains a great degree of ambiguity surrounding best practices for technology integration into the classroom as well as how to prepare educators to use technology as an effective and integrated part of the curriculum. Future research may delve deeper into the specific instances in which technology is being sufficiently integrated within the classroom. This research could help clarify under which conditions

teachers utilize technology for student-centered purposes and provide insight into how to best influence teachers to apply this use across contexts. Additionally, further examination of varying types (i.e. on campus course as compared to virtual courses) and degrees (i.e. number of credits obtained specifically oriented to technology integration) of university level direct instruction may assist in the development of more effective educational courses or programs as well as professional development opportunities.

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TABLES

Table 1
Means and Standard Deviations for Scenarios

Scenario	***M***	***SD***
Scenario 1	1.35	0.931
Scenario 2	1.18	0.951
Scenario 3	1.41	0.870
Scenario 4	1.59	0.618

Table 2

Breakdown of Participants' Level of Experience

Experience	Frequency	Percent
Novice	7	41.2
Intermediate	4	23.5
Advanced	6	35.3
Total	**17**	**100.0**

APPENDIX A

IRB Application

FORT HAYS STATE UNIVERSITY
INSTITUTIONAL REVIEW BOARD
FOR HUMAN SUBJECTS RESEARCH

APPLICATION

Proposals for review by the IRB may be submitted at any time. With the exception of expedited reviews, complete proposals submitted no later than ten (10) business days prior to a scheduled meeting will be reviewed at that meeting. Late proposals will be reviewed at the next scheduled meeting. The IRB meeting schedule is posted on the website. Incomplete proposals will not be reviewed, and will be returned to the researcher for completion.

Type of Request:

☐**Full Review**
Complete Application and Relevant Forms
☐**Expedited Review**
Complete Application and Expedited Review Attachment

☐**Approved research proposal revision request (use revision /extension form)**
☐**Approved research proposal extension request (use revision /extension form)**

☒**Exempt from Review**
Complete Application and Exempt Review Attachment

Application Information:

1. Activity or Project Title: Influence of University Level Direct Instruction on Educators' Use o Technology in the Classroom

2. List all people involved in research project:

Name & Title	Institution & Department	Phone	Email
*Angie M. Garner	Psychology	785-259-5318	amgarner@scatcat.fhsu.edu
**Dr. Jennifer Bonds-Raacke Thesis Chair	Psychology	785-628-4403	jmbondsraacke@fhsu.edu

*Principal Investigator
**Faculty Research Advisor (if student is Principal Investigator)

Time period for activity: From August 2011 to August 2012
*If longer than 1 year, annual review will be needed

3. Type of investigator and nature of the activity: (Check all the appropriate categories)

☐A. Faculty/Staff at FHSU:

- ○ Submitted for extramural funding to:
- ○ Submitted for intramural funding to:
- ○ Project unfunded
- ○ Other (Please explain)

☒B. Student at FHSU: ☒Graduate ☐Undergraduate ☐Special☒ Thesis

- ☐Specialist Field Study
- ☐Graduate Research Paper
- ☐Independent Study
- ☐Class Project (Course Number and Course Title):
- ☐Other (Please Explain)

☐C. Investigator not from FHSU but using subjects obtained through FHSU

☐D. Other than faculty, staff, or student at FHSU:

○Please identify each investigator and describe the research group:

4. Certifications:

I am familiar with the policies and procedures of Fort Hays State University regarding human subjects in research. I subscribe to the university standards and applicable state and federal standards and will adhere to the policies and procedures of the Institutional Review Board for the Protection of Human

Subjects. I will comply with all instructions from the IRB at the beginning and during the project or will stop the project.

AND

I am familiar with the published guidelines for the ethical treatment of human subjects associated with my particular field of study.

Statement of Agreement:

By electronically signing this application package, I certify that I am willing to conduct and /or supervise these activities in accordance with the guidelines for human subjects in research. Further, I certify that any changes in procedures from those outlined above or in the attached proposal will be cleared through the IRB.

If the Principal Investigator is a student, the electronic signature of the Faculty Advisor certifies:
1) Agreement to supervise the student research; and, 2) This application is ready for IRB review. The Student is the "Principal Investigator". The Faculty Research Advisor is the "Advisor". Designees may not sign the package. It is the student's responsibility to contact their Faculty Research Advisor when the study is ready for his/her signature.

☒ I certify the information provided in this application is complete and correct
☒ I understand that I have ultimate responsibility for the conduct of the study, the ethical performance of the project, the protection of the rights and welfare of human subjects and strict adherence to any stipulations imposed by the IRB.
☒ I agree to comply with all FHSU policies, as well as all federal, state and local laws on the protection of human subjects in research, including:

- Ensuring all study personnel satisfactorily complete human subjects in research training
- Performing the study according to the approved protocol
- Implementing no changes in the approved study without IRB approval
- Obtaining informed consent from subjects using only the currently approved consent form
- Protecting identifiable health information in accordance with HIPAA Privacy rule
- Promptly reporting significant or untoward adverse effects to the IRB

Description of Project

Completely describe the research project below. Provide sufficient information for effective review, and define abbreviations and technical terms. Do NOT simply attach a thesis, prospectus, grant proposal, etc.

A. Project purpose(s):

The current study will examine the effect that receiving formal education at the university level has on teacher utilization and implementation of technology in the classroom setting. This research is intended to better clarify whether or not receiving formal instruction on the integration of technology into the classroom has a significant impact on the degree and frequency of technology usage in the classroom setting. Other variables to be explored are: (a) teacher preparation for computer use; (b) confidence and comfort using computers; (c) general school support; (d) personal use of computers; (e) availability of technical support; and (f) attitudes toward computer use. This research is also intended to investigate the factors influencing lack of technology integration. Finally, the relationship between philosophies of education and level of technology integration will be explored.

B. Describe the proposed participants (number, age, gender, ethnicity, etc)

Participants will include a sample of individuals from a population of graduates of the Master in Education program at Fort Hays State University who have taken the AEP 800 course: Introduction to Utilization of Technology in Classrooms. Participants will be recruited based on a database of students who have taken the aforementioned course as kept by Dr. Robert Moody, professor of the AEP 800 course at FHSU. This database includes individuals who have received or who are working to obtain Master Degrees from the College of Education at FHSU. Because Dr. Moody's database is exclusive to individuals who have taken the AEP 800 course and because this course is required for all individuals seeking master level degrees in education, transcripts will not be obtained.

- It is the researcher's intent to obtain about 75 participants for this research.
- It is expected that participants will be between the ages of 18 and 65
- Participants will be of any gender, ethnicity or race.

C. What are the criteria for including or excluding subjects? Are any criteria based on age, gender, race, ethnicity, sexual orientation, or origin? If so, justify.

There is no criterion for excluding participants except that they must be within the age range that allows them to be currently teaching with in the field of education.

D. Population from which the participants will be obtained

General Populations:

☒Adult students (18-65 years) on-campus
☒Adults (18-65 years) off-campus

☒FHSU Students*
☐FHSU Employees*

☐International Research Population *

Protected Populations*

☐Children (Less than 18 Years)
☐Elderly (65+ Years)
☐Prisoners
☐Wards of the State
☐Pregnant Women
☐Fetuses
☐Vulnerable Population*

Vulnerable to coercion, Vulnerable to influence, Economically disadvantaged, Educationally disadvantaged, Mentally disabled

*APPROPRIATE ATTACHMENTS MUST BE INCLUDED IN THE APPLICATION PACKAGE

E. Recruitment Procedures: Describe in detail steps used to recruit participants.

Participants will be recruited based on a database of students graduating with education degrees kept by Dr. Robert Moody, professor of the AEP 800 course at FHSU. A recruiting script will be sent to all potential participants via email. Following the obtainment of informed consent, all participants will be given access to a web-based survey to determine teachers' level of integration of technology in the classroom

F. Describe the benefits to the participants, discipline/field, and/or society for completing the research project.

The knowledge gained through conducting this research is applicable to Fort Hays State University's teacher education program and could also be applied to other university teacher education programs as well, given that it has been shown that technology can enhance educational experiences. The information gathered may help in the evaluation of the educational technology course currently in place at Fort Hays State University (FHSU), whether or not it is shown to have an influence on pedagogical practices in the classroom setting. If taking the course is found to positively influence type and degree of technology integration into the classroom, the course at FHSU may act as a model for technology courses in education at other institutions of higher education. If no significant influence is found, the university may use this knowledge to reformulate and improve the course or supplement it with additional courses.

Furthermore, the current research also has practical implications for many individuals within the educational setting including school administrators, teachers, special education directors, school psychologists, and students. In addition to the previously addressed benefits to the implementation of technological educational tools, when used appropriately technology has been shown to be more cost effective in improving student achievement than class size reduction, increased instructional time, and cross age tutoring programs (Mann, Shakeshaft, Becker, & Kottkamp, 1999). Students and teachers may benefit from an enriched classroom setting, and students with special needs have been shown more significant rates of improvement when technological educational learning tools are used (Schacter, 1999).

Finally, the current research is intended to expand the literature and enhance the knowledge in the field of educational research. It is intended that this research will provide information on how to best prepare educators to effectively integrate technology into the classrooms, and therefore, enhance the educational experience and opportunities for students.

G. Describe the potential risks to participants for completing the research project. *A risk is a potential harm that a reasonable person would consider important in deciding whether to participate in research. Risk can be categorized as physical, psychological, social, economic and legal, and include pain, stress, invasion of privacy, embarrassment or exposure of sensitive or confidential information. All potential risks and discomforts must be minimized to the greatest extent possible by using appropriate monitoring, safety devices and withdrawal of a subject if there is evidence of a specific adverse event.*

This study has been developed in a way as to ensure that participants are at no more risk than they would experience in their everyday lives. However, it is possible that participants may feel emotional stress regarding the extent to which they integrate technologies into their classrooms, as they may feel it possesses a threat to their ability to adequately perform their jobs as educators. In the unlikely event that a participant feels any threat, coercion, or discomfort at anytime during the study, he or she may choose to withdraw without any further questions being asked.

H. Describe the follow up efforts that will be made to detect any harm to subjects, and how the IRB be kept informed. *Serious adverse or unexpected reactions or injuries must be reported to the IRB within 48 hours. Other adverse events should be reported within 10 days.*

Harm will be detected by correspondence via email between the researcher and the participants and will be taken very seriously. In the event that it is detected that any harm to subjects has occurred, the researcher will immediately notify the IRB for information regarding what should be done to alleviate such harm and will continue to keep them informed throughout the impending situation.

I. Describe the procedures used in the research project (in detail, what will all participants experience during the research project):

Participants will be recruited via email and asked to participate in the research project. Upon gaining informed consent, a web-based survey will be administered to each of the participants. Participants who have provided consent will fill out the survey online, and be debriefed upon completion or withdraw from the study. The survey process should take approximately 30 minutes to complete from start to finish.

J. List all measures/instruments to be used in the project, include citations and permission to use (if measure/instrument is copyrighted) if needed or if it will be changed for this study. Attach copies of all measures:

- 4 Self-Constructed Scenarios
- The Inventory of Philosophies of Education (Sadker & Sadker, 2003).
- The Perception of Computers and Technology (Hogarty, Lang, & Kromrey, 2003).

K. Describe in detail how confidentiality will be protected before, during, and after information has been collected?

In order to ensure confidentiality of all participants before data collection, all email addresses from the database will be kept confidential and access will only be allowed to those individuals directly involved in the project, i.e. the researcher, the scoring assistant, the thesis chair, and committee members. The researcher will have access to the email addresses of the participants but will not have access to the names of the participants. Dr. Moody will provide only a list of email addresses to the researcher to ensure that she does not have access to the names of participants. Additionally, names will not be requested or appear on the survey as participant numbers will be applied to the surveys by the survey system. During participation, the features of the web-based survey will allow participants to complete the survey from the location of their choice preventing them from appearing in front of others to participate in the survey. Following data collection, the information gathered will be entered into SPSS and the surveys will be discarded by the researcher

L. Data: How will the data be stored? When will the data be destroyed? Who will have access to the data? If audio or video recordings are used, how will they be kept confidential?

The initial data collected will be stored in an online database that will be destroyed after data has been entered into SPSS. Only the researcher, the school psychology graduate student who assists in scoring the scenarios and the thesis committee members will be allowed access to the data.

M. Informed Consent: Describe in detail the **process** for obtaining consent*. If non English speaking subjects are involved, describe how consent will be obtained.*

Informed consent will be obtained by administering an informed consent form to all potential participants via email.

All eligible participants will be contacted and issued a recruiting script via email based on the database of students kept by Dr. Moody. They will then be presented with an informed consent form in which the option of clicking “yes” indicates the participants’ consent to participate and the option of clicking “no” indicates that they do not desire to participate and results in the participant being directed to an alternate page thanking the participant for his or her consideration. Following the obtainment of informed consent, all consenting participants will be given access to a web-based survey to determine teachers’ level of integration of technology in the classroom.

N. If informed consent is to be waived or altered, complete Supplemental: Consent Waiver Form

O. If written documentation of consent is to be waived, complete Supplemental: Documentation Waiver Form

N. Explain Debriefing procedures/end of study information that will be given to all participants.

The participants will be debriefed upon completion or withdraw from the study. A debriefing form will appear at this time explaining the purpose of the study and will also include contact information for the researcher if further inquiries are to be made as well as information regarding resources offered for those who may feel distressed as a result of participation.

O. Emergencies. How will emergencies or unanticipated adverse events related to the research be handled if they arise?

Emergencies will be handled to the greatest extent possible given that participants will not be present on site. If unanticipated or adverse events related to research arise the participants will be advised to seek services readily available to them if they are not able to receive these services from the Kelly Center. Participants who are still enrolled as students of the university may utilize the services provided by the Kelly

Center however, these services are not available to past students. Participants who are no longer students of FHSU may contact the Kelly Center for referral purposes.

P. Will information about the research purpose and design be held from subjects? If yes, justify the deception.

Information about the research purpose and design will not be held from subjects.

R. If the research involves protected health information, it must comply with the HIPAA Privacy Rule.

☐Do you plan to use or disclose identifiable health information outside FHSU?
If yes, the consent form must include a release of protected health information.
☐The IRB may make a waiver of authorization for disclosure if criteria are met under the HIPAA Privacy Rule.
If a waiver of authorization is being requested, the researcher must contact the IRB chair prior to submitting this application.
☐Will the protected health information to be used or disclosed be de identified or will a limited data set be used or disclosed?

S. Each individual with a personal financial interest or relationship that in the individual's judgment **could reasonably appear to affect or be affected by the proposed study** involving human subjects should attach a Supplemental Form: Conflict of Interest. It is unnecessary to report any financial interests or relationships that do **not** reasonably appear to affect or be affected by the proposed study.

Definitions:

"Conflict of interest" occurs when an independent observer may reasonably question whether an individual's professional actions or decisions are influenced by considerations of the individual's private interests, financial or otherwise.

Conflicting financial interests do not include:

- Salary and benefits from Fort Hays State University;
- Income from seminars, lectures, teaching engagements, or publishing sponsored by federal, state, or local entities, or from non-profit academic institutions, when the funds do not originate from corporate sources;
- Income from service on advisory committees or review panels for governmental or non-profit entities;
- Investments in publicly-traded mutual funds;
- Gifts and promotional items of nominal value; and
- Meals and lodging for participation in professional meetings.

"Principal investigator or other key personnel" means the principal investigator and any other person, including students, who are responsible for the design, conduct, analysis, or reporting of research involving human subjects.

CONSENT TO PARTICIPATE IN RESEARCH

Department of Psychology, Fort Hays State University

Influence of University Level Direct Instruction on Educators Use of Technology in the Classroom

Name of Researcher: Angie M. Garner
Contact Information: Phone: 785-259-5318 or Email: amgarner@scatcat.fhsu.edu
Name of Faculty Supervisor: Dr. Jennifer Bonds-Raacke, Thesis Chair
Contact Information: Phone: 785-628-4403 or Email: jmbondsraacke@fhsu.edu

You are being asked to participate in a research study. It is your choice whether or not to participate.

Your decision whether or not to participate will have no effect on your relationship with the university or any other benefits or services to which you are otherwise entitled. Please ask questions if there is anything you do not understand.

What is the purpose of this study ?
The purpose of the study is to examine the effects that receiving formal education at the university level has on teacher utilization and implementation of technology in the classroom setting. Information will also be gathered regarding the types of technology utilized by educators and the factors influencing technology integration in the classroom.

What does this study involve ?
Participation in this study will involve the completion of a web-based survey consisting of three components that are intended to measure teacher philosophies of education, teacher attitudes and beliefs toward the usage of technology, and to demonstrate the ways in which technologies are utilized in their classrooms.

If you decide to participate in this research study, you will be asked to sign this consent form after you have had all your questions answered and understand what will happen to you. The length of time of your participation in this study is 30 minutes. Approximately 75 participants will be in this study.

The procedure for administering the questions to obtain data will be through the utilization of a web-based survey administered through a link sent to the participants' email address. The survey will begin with four open ended scenarios that will require typed responses. The remaining questions that will be asked are closed ended questions on a Leikert scale. All questions asked, aside from demographic information, will relate to technology use in the classroom and philosophies of education. None of the questionnaires used in this study are experimental in nature.

Are there any benefits from participating in this study ?
There will be no benefits to you should you decide to participate in this study. Your participation will help us learn more about the ways in which formalized education at the university level effects integration of technology by educators in the classroom setting.

Will you be paid or receive anything to participate in this study ?

You will not receive any compensation if the results of this research are used towards the development of a commercially available product.

What about the costs of this study ?
There are no costs for participating in this study other than the time you will spend filling out the web-based survey.

What are the risks involved with being enrolled in this study ?

It is unlikely that participation in this project will result in harm to participants. However, if you feel distressed or become upset by participating in any way, you may contact the Kelly Center for assistance. If you are currently a student of Fort Hays State University, the Kelly Center can be accessed free of charge to offer professional support and counseling. If you are no longer enrolled with FHSU, you may contact the Kelly Center for assistance in referring you to a healthcare provider in your area. The resources offered by the Kelly Center can be utilized by calling the office at 785-628-4401.

How will your privacy be protected?
The information collected as data for this study includes the results to the web-based survey. The data will be used to run statistical analysis and then stored in a safe location. Participant identification numbers will be used to ensure anonymity and data will be maintained for 5 years which is standard procedure in the field of psychology, upon which time they will be erased. Access to the information will be granted only to the researcher and the researchers' thesis chair and committee members.

Efforts will be made to protect the identities of the participants and the confidentiality of the research data used in this study, such as using password protected computers where data is entered and stored and de-indentifying all data collected.

Potentially identifiable information about you will consist of information gained from the administered surveys. Data is collected only for research purposes. Your data will be identified by participant identification number, not name, and will be stored separately in a locked file cabinet. All personal identifying information will be kept in locked files and these files will be destroyed after a period of 5 years. Access to all data will be limited to the researcher and the researchers' thesis chair and committee members.

The information collected for this study will be used only for the purposes of conducting this study. What we find from this study may be presented at meetings or published in papers but your name will not ever be used in these presentations or papers.

Other important items you should know:

• **Withdrawal from the study:** You may choose to stop your participation in this study at any time. Your decision to stop your participation will have no adverse effects.

• **Funding:** There is no outside funding for this research project.

Whom should you call with questions about this study ?

Questions about this study may be directed to the researcher in charge of this study: Angie M. Garner at (785) 259-5318.

If you have questions, concerns, or suggestions about human research at FHSU, you may call the Office of Scholarship and Sponsored Projects at FHSU (785) 628-4349 during normal business hours.

CONSENT

You are under no obligation to participate in the study. Your completing and submission of this questionnaire will be taken as evidence of your willingness to participate and your consent to have the information used for purposes of the study. You may keep this cover letter and explanation about the nature of your participation in this study and the handling of the information you supply.

Debriefing Statement

Influence of University Level Direct Instruction on Educators' Use of Technology in the Classroom

The purpose of this study is to examine the effects that receiving formal education at the university level has on the integration of technology in the classroom. In this study, participants who have taken the AEP 800 Introduction to Utilization of Technology in Classrooms will be surveyed to gather information regarding their use of technology in the classroom. Additionally, the types of technology used will be evaluated, and factors influencing integration will be investigated. The aim of this study is to identify how formal education relates to technology usage in the applied setting.

This study was designed to gather information relating to five hypotheses. First, it was hypothesized that individuals who have received formal training at the university level would have significantly higher levels of technology integration than the standard level determined from previous research. Second it was hypothesized that levels of technology integration would differ across perceived scenario content. Third, it was hypothesized that level of technology integration would vary across levels of teaching experience and school level taught. Fourth, it was hypothesized that the five philosophies of education would predict level of technology integration. Finally, it was hypothesized that the four domains of perceptions of computers and technology would predict level of technology integration.

If after participating in this research you are feeling distressed from any of the questions on the surveys, the following resource can offer you professional support and counseling.

Kelly Center
Picken Hall Room 111
600 Park Street
Hays, KS 67601
(785) 628-4401

If you have any questions about this study or your rights as a participant in this study, please contact:

Dr. Janett Naylor
Chair, Ethics Committee
Martin Allen Hall 216
600 Park Street
Hays, KS 67601
(785) 628-5857
jmnaylor@fhsu.edu

Or

Dr. Jennifer Bonds-Raacke
Thesis Chair
Martin Allen Hall 102
600 Park Street
Hays, KS 67601
(785) 628-4403
jmbondsraacke@fhsu.edu
If you wish to inquire about the results of this study, please send an email request to:
amgarner@scatcat.fhsu.edu.

APPENDIX B

IRB Approval Letter

FORT HAYS STATE UNIVERSITY

Forward thinking. World ready.

OFFICE OF SCHOLARSHIP AND SPONSORED PROJECTS

DATE:	July 28, 2011
TO:	Angie Garner
FROM:	Fort Hays State University IRB
STUDY TITLE:	[256457-1] Influence of University Level Direct Instruction on Educators' Use of Technology in the Classroom
IRB REFERENCE #:	12-006
SUBMISSION TYPE:	New Project
ACTION:	DETERMINATION OF EXEMPT STATUS
DECISION DATE:	July 28, 2011
REVIEW CATEGORY:	Exemption category #2

Thank you for your submission of New Project materials for this research study. The departmental human subjects research committee and/or the Fort Hays State University IRB/IRB Administrator has determined that this project is EXEMPT FROM IRB REVIEW according to federal regulations.

Please note that any changes to this study may result in a change in exempt status. Any changes must be submitted to the IRB for review prior to implementation. In the event of a change, please follow the Instructions for Revisions at http://www.fhsu.edu/academic/gradschl/irb/.

The IRB administrator should be notified of adverse events or circumstances that meet the definition of unanticipated problems involving risks to subjects. See http://www.hhs.gov/ohrp/policy/AdvEvntGuid.htm.

We will put a copy of this correspondence on file in our office. Exempt studies are not subject to continuing review.

If you have any questions, please contact Leslie Paige at lpaige@fhsu.edu or 785-628-4349. Please include your study title and reference number in all correspondence with this office.

APPENDIX C

Recruitment Email

Recruiting script sent via email to graduates of the FHSU education program.

Hello, my name is Angie Garner and I am a graduate student at Fort Hays State University currently working to obtain my Master's Degree in School Psychology. I am conducting thesis research on the effects of formal education pertaining to integration of technology into the classroom on actual integration of technology by educators in the field. As a graduate or current student of the FHSU graduate level education program, you meet the qualifications for participation in the current study. This research is hoped to lead to a greater understanding of how to best prepare individuals to integrate technologies into their classrooms by determining if taking a course at the college level affects the likelihood that such technologies will be implemented by teachers in the classroom setting.

Participation in this research is entirely voluntary. If you should choose to participate, please click the link below that says "Yes, I would like to participate." If you do not wish to participate please click the link below that reads "No, I do not wish to participate." Upon your consent to participate, you will be sent a link to a web-based survey involving questionnaires that are intended to assess your current practices of technology integration in the classroom. All information gathered will be kept confidential and will be destroyed following data collection. The survey will take approximately 30 minutes to complete.

If you have any questions regarding this research, or if you would like to participate in this study, please contact me at amgarner@scatcat.fhsu.edu or simply reply to this email.

Thank you for your time,
Angie M. Garner
Graduate Student,
Fort Hays State University

APPENDIX D

Informed Consent Form

CONSENT TO PARTICIPATE IN RESEARCH

Department of Psychology, Fort Hays State University

Influence of University Level Direct Instruction on Educators Use of Technology in the Classroom

Name of Researcher: Angie M. Garner
Contact Information: Phone: 785-259-5318 or Email: amgarner@scatcat.fhsu.edu
Name of Faculty Supervisor: Dr. Jennifer Bonds-Raacke, Thesis Chair
Contact Information: Phone: 785-628-4403 or Email: jmbondsraacke@fhsu.edu

You are being asked to participate in a research study. It is your choice whether or not to participate.

Your decision whether or not to participate will have no effect on your relationship with the university or any other benefits or services to which you are otherwise entitled. Please ask questions if there is anything you do not understand.

What is the purpose of this study ?

The purpose of the study is to examine the effects that receiving formal education at the university level has on teacher utilization and implementation of technology in the classroom setting. Information will also be gathered regarding the types of technology utilized by educators and the factors influencing technology integration in the classroom.

What does this study involve ?

Participation in this study will involve the completion of a web-based survey consisting of three components that are intended to measure teacher philosophies of education, teacher attitudes and beliefs toward the usage of technology, and to demonstrate the ways in which technologies are utilized in their classrooms.

If you decide to participate in this research study, you will be asked to sign this consent form after you have had all your questions answered and understand what will happen to you. The length of time of your participation in this study is 30 minutes. Approximately 75 participants will be in this study.

The procedure for administering the questions to obtain data will be through the utilization of a web-based survey administered through a link sent to the participants' email address. The survey will begin with four open ended scenarios that will require typed responses. The remaining questions that will be asked are closed ended questions on a Leikert scale. All questions

asked, aside from demographic information, will relate to technology use in the classroom and philosophies of education. None of the questionnaires used in this study are experimental in nature.

Are there any benefits from participating in this study ?
There will be no benefits to you should you decide to participate in this study. Your participation will help us learn more about the ways in which formalized education at the university level effects integration of technology by educators in the classroom setting.

Will you be paid or receive anything to participate in this study ?
You will not receive any compensation if the results of this research are used towards the development of a commercially available product.

What about the costs of this study ?
There are no costs for participating in this study other than the time you will spend filling out the web-based survey.

What are the risks involved with being enrolled in this study ?

It is unlikely that participation in this project will result in harm to participants. However, if you feel distressed or become upset by participating in any way, you may contact the Kelly Center for assistance. If you are currently a student of Fort Hays State University, the Kelly Center can be accessed free of charge to offer professional support and counseling. If you are no longer enrolled with FHSU, you may contact the Kelly Center for assistance in referring you to a healthcare provider in your area. The resources offered by the Kelly Center can be utilized by calling the office at 785-628-4401.

How will your privacy be protected?
The information collected as data for this study includes the results to the web-based survey. The data will be used to run statistical analysis and then stored in a safe location. Participant identification numbers will be used to ensure anonymity and data will be maintained for 5 years which is standard procedure in the field of psychology, upon which time they will be erased. Access to the information will be granted only to the researcher and the researchers' thesis chair and committee members.

Efforts will be made to protect the identities of the participants and the confidentiality of the research data used in this study, such as using password protected computers where data is entered and stored and de-indentifying all data collected.

Potentially identifiable information about you will consist of information gained from the administered surveys. Data is collected only for research purposes. Your data will be identified by participant identification number, not name, and will be stored separately in a locked file cabinet. All personal identifying information will be kept in locked files and these files will be destroyed after a period of 5 years. Access to all data will be limited to the researcher and the researchers' thesis chair and committee members.

The information collected for this study will be used only for the purposes of conducting this study. What we find from this study may be presented at meetings or published in papers but your name will not ever be used in these presentations or papers.

Other important items you should know:

• **Withdrawal from the study:** You may choose to stop your participation in this study at any time. Your decision to stop your participation will have no adverse effects.

• **Funding:** There is no outside funding for this research project.

Whom should you call with questions about this study ?

Questions about this study may be directed to the researcher in charge of this study: Angie M. Garner at (785) 259-5318.

If you have questions, concerns, or suggestions about human research at FHSU, you may call the Office of Scholarship and Sponsored Projects at FHSU (785) 628-4349 during normal business hours.

CONSENT

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APPENDIX E

Scenario Scoring Rubric

0 No Mention of Technology Integration	1 Rudimentary or Administrative Use	2 Sophisticated Technology Integration
• Participant fails to include any use of technology in his or her response.	• Participant mentions technology usage that makes school life more efficient for the teacher such as: a) Sending and receiving emails to set up meetings or share announcements b) As a means for recording grades, attendance or assessment c) Posting word documents or creating worksheets	• Participant response indicates the utilization and integration of technologies and curriculum and using technology in a way that directly supports classroom learning goals a) Helping students locate resources and execute procedures such as typing essays or developing presentations and encouraging students to produce through various forms of media b) Encouraging students to solve problems, communicate, and think critically and creatively c) Using technology to encourage students to explore and learn content more deeply d) The utilization of assistive technologies for individuals with special needs e) Displaying a firm understanding of available technologies and their potential uses (*for Scenario 4 this would include the utilization of free software programs and websites or tools*)

APPENDIX F

Sample Scenario Responses

Scenarios Sample 1

Directions: Please read the following scenarios carefully and respond in a manner that demonstrates best practices as an educator based on the grade level you are currently teaching. *These are intended to appear on screen one at a time.

1. One of your students, Jason, has been ill for three days and you have just received word from his mother that he has mono and will most likely be missing several more days of school. You are concerned that he may fall behind his peers due to his extended absence. How would you go about getting information home to ensure that Jason remains as up to date with assignments and develops an understanding of the material until his return?
   Record lecture using a smart pen for digital recording and make it available on the class shared website. I would also communicate with Jason via Skype and email and use the website to upload any documents that pertain to his work.

2. Sandra has been diagnosed with dyslexia and is on an IEP for reading but is eager to learn. She is having difficulty keeping up with course material because her reading abilities are so far below that of her peers. What tools or strategies might you implement to supplement Sandra's disability and assist her in achieving as much success as possible?
   Again, it would be possible to use the smart pen by printing assignments or tests on the dot paper which would allow for Sandra to have a read aloud or attaching sound stickers to text that must be read could also assist her with her studies. There area also apps available for IPads or IPhones that could be used, I would conduct research in this area. Additionally, there are read-aloud software tools available online that I would look into for her.

3. Your district has entered into a collaborative agreement with neighboring schools to engage in a service learning projects for your communities that will raise awareness about the importance of recycling. What tools or strategies might you use to enhance the projects chance of success?
   Skype would be a great tool to use for a collaborative project with another community. Email would also be affective. Shared document sites could be created as well and Google Documents would be a helpful tool when creating documents and presentations so that everyone could have access and make changes in real time.

4. You have just been informed by your Superintendent that the district budget for the purchase of software has been cut completely for this school year. What do you plan to do to negate the effects of zero technology funding?
   Assuming our school already has access to computers, I would do research to find free software that is available for download. For example, using Gmail and Google Docs can eliminate the costs associated with purchasing Microsoft Office Software and has many of the same capabilities at no cost.

Scenarios Sample 2

Directions: Please read the following scenarios carefully and respond in a manner that demonstrates best practices as an educator based on the grade level you are currently teaching. *These are intended to appear on screen one at a time.

1. One of your students, Jason, has been ill for three days and you have just received word from his mother that he has mono and will most likely be missing several more days of school. You are concerned that he may fall behind his peers due to his extended absence. How would you go about getting information home to ensure that Jason remains as up to date with assignments and develops an understanding of the material until his return?
   I would call or use email to inform Jason of the lessons being covered in class and of the assignments he is responsible for.

2. Sandra has been diagnosed with dyslexia and is on an IEP for reading but is eager to learn. She is having difficulty keeping up with course material because her reading abilities are so far below that of her peers. What tools or strategies might you implement to supplement Sandra's disability and assist her in achieving as much success as possible?
   I would use podcasts or YouTube videos to enhance Sandra's learning experience when covering units with a large amount of text to read. I would also look for applications or downloadable software that would have text to voice capabilities. Also, some of our textbooks are available online with read aloud so I would suggest that she use this feature.

3. Your district has entered into a collaborative agreement with neighboring schools to engage in a service learning projects for your communities that will raise awareness about the importance of recycling. What tools or strategies might you use to enhance the projects chance of success?
   We could use Google Docs to develop the project or presentation together. Creating a Wiki Site for the project would also be a possibility and would allow for shared ideas through blogging and could act as a hub for the project.

4. You have just been informed by your Superintendent that the district budget for the purchase of software has been cut completely for this school year. What do you plan to do to negate the effects of zero technology funding?

I am not sure what else could be done in this situation. Our school is experiencing this right not and technology purchases have been at a standstill for over two years because of budget issues.

Scenarios Sample 3

Directions: Please read the following scenarios carefully and respond in a manner that demonstrates best practices as an educator based on the grade level you are currently teaching. *These are intended to appear on screen one at a time.

1. One of your students, Jason, has been ill for three days and you have just received word from his mother that he has mono and will most likely be missing several more days of school. You are concerned that he may fall behind his peers due to his extended absence. How would you go about getting information home to ensure that Jason remains as up to date with assignments and develops an understanding of the material until his return?
   I would email Jason with a copy to his parents the assignments that he has missed. I would also schedule a time to hold a skype session to instruct the key points of a new concept and so that Jason could ask questions. I would also allow Jason extra time to complete the assignments as prescribed by our district policy.

2. Sandra has been diagnosed with dyslexia and is on an IEP for reading but is eager to learn. She is having difficulty keeping up with course material because her reading abilities are so far below that of her peers. What tools or strategies might you implement to supplement Sandra's disability and assist her in achieving as much success as possible?.
   I would look for books on tape covering the course material starting with the textbook so that Sandra could follow along. Shortening the reading assignment would be an option.

3. Your district has entered into a collaborative agreement with neighboring schools to engage in a service learning projects for your communities that will raise awareness about the importance of recycling. What tools or strategies might you use to enhance the projects chance of success?
   Put up posters all over school. Advertise on the project on the school website.

4. You have just been informed by your Superintendent that the district budget for the purchase of software has been cut completely for this school year. What do you plan to do to negate the effects of zero technology funding?
   Look for and write a grant for software. Check out free resources on the internet. Communicate with other teachers about the software they are using.

Scenarios Sample 4

Directions: Please read the following scenarios carefully and respond in a manner that demonstrates best practices as an educator based on the grade level you are currently teaching. *These are intended to appear on screen one at a time.

1. One of your students, Jason, has been ill for three days and you have just received word from his mother that he has mono and will most likely be missing several more days of school. You are concerned that he may fall behind his peers due to his extended absence. How would you go about getting information home to ensure that Jason remains as up to date with assignments and develops an understanding of the material until his return?
   I would send the homework assignments home with a sibling or drop it by the house.

2. Sandra has been diagnosed with dyslexia and is on an IEP for reading but is eager to learn. She is having difficulty keeping up with course material because her reading abilities are so far below that of her peers. What tools or strategies might you implement to supplement Sandra's disability and assist her in achieving as much success as possible?
   I would speak with the Special Ed teacher about strategies to help Sandra learn the material.

3. Your district has entered into a collaborative agreement with neighboring schools to engage in a service learning projects for your communities that will raise awareness about the importance of recycling. What tools or strategies might you use to enhance the projects chance of success?
   I would have recycling be the focus of our science unit or semester and tie it to other subjects as well. Also work with the local trash service to implement a recycling program and provide recycling bins.

4. You have just been informed by your Superintendent that the district budget for the purchase of software has been cut completely for this school year. What do you plan to do to negate the effects of zero technology funding?
   I would communicate with colleagues in other schools and districts about software they could legally share. And review current software that may not be fully utilized.

Scenarios Sample 5

Directions: Please read the following scenarios carefully and respond in a manner that demonstrates best practices as an educator based on the grade level you are currently teaching. *These are intended to appear on screen one at a time.

1. One of your students, Jason, has been ill for three days and you have just received word from his mother that he has mono and will most likely be missing several more days of school. You are concerned that he may fall behind his peers due to his extended absence. How would you go about getting information home to ensure that Jason remains as up to date with assignments and develops an understanding of the material until his return?
   When a similar situation occurred with one of my students I began recording my lessons on YouTube and uploaded them for the student so that he had access to all of the lecture material. Since then I have also used ScreenCastOMatic to record my lecture while the PowerPoint appears on the screen for the students and have uploaded them to the class website and many of my students use it for review on a regular basis.

2. Sandra has been diagnosed with dyslexia and is on an IEP for reading but is eager to learn. She is having difficulty keeping up with course material because her reading abilities are so far below that of her peers. What tools or strategies might you implement to supplement Sandra's disability and assist her in achieving as much success as possible?
   I would decrease the amount of reading required and cut down assignments or make modifications. I would also try using a peer tutoring and increase the amount of groupwork in my classroom. I may also do research on assistive materials or technologies that could be used based on information about her specific condition.

3. Your district has entered into a collaborative agreement with neighboring schools to engage in a service learning projects for your communities that will raise awareness about the importance of recycling. What tools or strategies might you use to enhance the projects chance of success?
   We could use email to communicate back and forth and develop the project and hold monthly meetings.

4. You have just been informed by your Superintendent that the district budget for the purchase of software has been cut completely for this school year. What do you plan to do to negate the effects of zero technology funding?

I would contact the PTO or other school organizations to try to gather funds if there was a technology that I felt was really important to have in my classroom.

Scenarios Sample 6

Directions: Please read the following scenarios carefully and respond in a manner that demonstrates best practices as an educator based on the grade level you are currently teaching. *These are intended to appear on screen one at a time.

1. One of your students, Jason, has been ill for three days and you have just received word from his mother that he has mono and will most likely be missing several more days of school. You are concerned that he may fall behind his peers due to his extended absence. How would you go about getting information home to ensure that Jason remains as up to date with assignments and develops an understanding of the material until his return?
   I would try to send as much regular assignments home with Jason so he can work on his assignments. I would also send home all of the teaching supplements (videos, PowerPoints, etc) with him as well. If at all possible, I would explain everything to the parents so they could assist with the assignments. With all of the technology that is available, it would be great if Skype was available to talk to Jason so help him with his assignments. Depending on the content being covered, the assignments can be modified due to the circumstances.

2. Sandra has been diagnosed with dyslexia and is on an IEP for reading but is eager to learn. She is having difficulty keeping up with course material because her reading abilities are so far below that of her peers. What tools or strategies might you implement to supplement Sandra's disability and assist her in achieving as much success as possible?
   Well first I would want to see her IEP so I would know what she is supposed to do in the regular education classroom and what is she supposed to do in the Special Education classroom. With her being a student with Dyslexia, I doubt she would be a full inclusive student in the regular education classroom. In the regular classroom, I would make modified lessons and assignments for her at her level because it would not be fair to her if she had to do 6th grade level reading if she can only read at a 4th grade level. Many reading series' cover the same topics but at different levels so it might be possible to have Sandra participate in the whole class lectures and then do one-on-one individualized lessons with Sandra. During reading groups, Sandra would be able to read the basil readers that are at her level. With having Sandra reading at her level, she will still be able to be challenged but she will have a lower frustration level so that she does not get discouraged with reading.

3. Your district has entered into a collaborative agreement with neighboring schools to engage in a service learning projects for your communities that will raise awareness about the importance of recycling. What tools or strategies might you use to enhance the projects chance of success?
   It would be a good idea to incorporate recycling into everyday activities in the classroom. The students could be encouraged to bring items from home if the families do not recycle at home. In order to get better participation from the students, the recycling project could be turned into a mini competition between classes to see which class could recycle the most material in a certain amount of time. The students could also create displays to put up around town to promote recycling and why recycling is important for a community.

4. You have just been informed by your Superintendent that the district budget for the purchase of software has been cut completely for this school year. What do you plan to do to negate the effects of zero technology funding?
   I would start applying for grants that are available because there are many different grants available to teachers in order to get technology and supplies for classrooms when the district cannot afford it. I would also do some research because there are many free resources available if you are willing to look for them. Technology is a major part of school in this day in age but the day can still go on without the presence of laptops and such in the classroom. The teachers can make other teaching tools that do not involve the use of expensive technology. If it was something that was absolutely vital for a project or something in the classroom, I would see how much of my classroom budget I would be able to use to purchase the equipment or supplies. Also, depending on the class, some parents might be willing to donate a little money in order to help purchase the software or technology supplies for the classrooms. There are ways to get technology, teachers just need to think outside of the box and get creative.

APPENDIX G

Scenario Score Sheet

Participant #	Scenario 1	Scenario 2	Scenario 3	Scenario 4
1				
2				
3				
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9				
10				
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17				

APPENDIX H

Inventory of Philosophies of Education

Inventory of Philosophies of Education

Directions: As you read and consider the following statements, indicate how strongly you agree or disagree. Select your responses on the left of each statement using the following scale:

1: Disagree Strongly
2: Disagree
3: Neutral
4: Agree
5: Agree Strongly

Scale Options were be listed 1 through 5 to the left of each question.

1. A school curriculum should include a common body of information that all students should know.
2. The school curriculum should focus on the great ideas that have survived through time.
3. The gap between the real world and schools should be bridged through fieldtrips, internships, and adult mentors.
4. Schools should prepare students for analyzing and solving the social problems they will face beyond the classroom.
5. Each student should determine his or her individual curriculum, and teachers should guide and help them.
6. Students should not be promoted from one grade to the next until they have read and mastered certain key material.
7. Schools, above all, should develop students' abilities to think deeply, analytically, and creatively, rather than focus on transient concerns like social skills and current trends.
8. Whether inside or outside the classroom, teachers must stress the relevance of what students are learning to real and current events.
9. Education should enable students to recognize injustices in society, and schools should promote projects to redress social inequities.
10. Students who do not want to study much should not be required to do so.
11. Teachers and schools should emphasize academic rigor, discipline, hard work, and respect for authority.
12. Education is not primarily about workers and the world economic competition; learning should be appreciated for its own sake, and students should enjoy reading, learning, and discussing intriguing ideas.
13. The school curriculum should be designed by teachers to respond to the experiences and needs of the students.
14. Schools should promote positive group relationships by teaching about different ethnic and racial groups.

15. The purpose of school is to help students understand themselves, appreciate their distinctive talents and insights, and find their own unique place in the world.
16. For the United States to be competitive economically in the world marketplace, schools must bolster their academic requirements in order to train more competent workers.
17. Teachers ought to teach from the classics, because important insights related to many of today's challenges and concerns are found in these Great Books.
18. Since students learn effectively through social interaction, schools should plan for substantial social interaction in their curricula.
19. Students should be taught how to be politically literate, and learn how to improve the quality of life for all people.
20. The central role of the school is to provide students with options and choices. The students must decide what and how they learn.
21. Schools must provide students with a firm grasp of basic facts regarding the books, people, and events that have shaped the nation's heritage.
22. The teacher's main goal is to help students unlock the insights learned over time, so they can gain wisdom from the great thinkers of the past.
23. Students should be active participants in the learning process, involved in democratic class decision making and reflective thinking.
24. Teaching should mean more than simple transmitting of the Great books, which are replete with biases and prejudices. Rather, schools need to identify a new list of Great Books more appropriate for today's world, and prepare students to create a better society than their ancestors did.
25. Effective teachers help students to discover and develop their personal values, even when those values conflict with traditional ones.
26. Teachers should help students constantly reexamine their beliefs. In history, for example, students should learn about those who have been historically omitted: the poor, the non-European, women, and people of color.
27. Frequent objective testing is the best way to determine what students know. Rewarding students when they learn, even when they learn small things, is the key to successful teaching.
28. Education should be a responsibility of family and community, rather than delegated to formal and impersonal institutions, such as schools.

APPENDIX I

Perceptions of Computers and Technology Scale

Perceptions of Computers and Technology

This survey is designed to gain a better understanding of how educators use technology in the classroom and their level of experience with computers. The survey includes sections addressing level of confidence, skill, support, and uses of computers and technology in teaching. Responses will be kept strictly confidential and individual responses will not be identified or reported.

Demographics

Directions: Please select the responses that best reflect your personal attributes.

Gender: ____Male ____Female

Race/Ethnicity: ____Native American/American Indian ____African American ____ White/non-Hispanic ____Asian/Pacific Islander ____Hispanic ____Other, please specify _____

What Master Degree did you earn from FHSU?

____ Gifted Education
____ English as a Second to Other Language
____ Instructional Technology
____ Library Media Specialist
____ Reading Specialist
____ Transition to Teaching
____ Other, please specify _____

What subject area(s) do you teach? (Check all that apply)

____ English
____ Art/Music
____ Math
____ Media/Technology Specialist
____ Reading
____ Special Education
____ Science
____ Vocational Education
____ Social Studies
____ Physical Education
____ Science
____ Vocational Education
____ Other, Please specify _____.

Total teaching experience in years: ____

What grade level(s) do you currently teach? ____

Average number of students per class: ____

Number of computers in your classroom used for instruction: ____

How many yeas have you been using computers in your classroom for instruction? ____

Do you have access to a computer lab or laptop computers? ____Yes ____No

If yes, how many hours each week do your students use the lab or have access to the laptops? ____

Teacher Preparation for Computer Use

Directions: For the following items please select the one response that best reflects the extent to which you've acquired computer skills from the following sources.

1: Not at all
2: To a small extent
3: To a moderate extent
4: To a great extent
5: Entirely

As part of your undergraduate coursework
As part of your graduate coursework
Inservice courses / workshops
Independent learning (e.g., online tutorials or books)
Interaction with other faculty / staff
Distance Learning courses

To what extent do you think the following types of computer education would be beneficial to you?
Introductory computer skills
Specific applications (e.g., spreadsheets)
Specialized training on integrating the computer into the classroom

Confidence and Comfort Using Computers

Directions: Please read the following statements and select the one response that best reflects your level of agreement.

1: Strongly disagree
2: Disagree
3: Neutral
4: Agree
5: Strongly Agree

I have had adequate training in using computers.
I use computers effectively in my classroom.
I am comfortable giving computer assignments to my students.
The computer enhances my teaching.
I am comfortable using computers during classroom instruction.
My use of computer technology enhances student performance.
Incorporating multi-media into lessons enhances teaching.
I am comfortable with computer terminology.
I am developing expertise in the use of technology in the classroom.

General School Support

Directions: Please read the following items and select the one response that best represents your level of agreement.

1: Strongly disagree
2: Disagree
3: Neutral
4: Agree
5: Strongly Agree

I have adequate time to learn computer skills.
I have sufficient access to computers at my school.
I receive a sufficient level of computer related support at my school.
Faculty members encourage the use of computers.
The administration supports computer related training.
The administration provides technology related inservice opportunities.
The administration provides financial support for technology centered continuing education.

The administration actively encourages the use of computers in the classroom.
The administration actively encourages the use of computers outside theclassroom.

Types of Software Used to Complete School Related Activities - Personal Use

Directions: For each type of software please select the response to indicate how often you use the software to complete school related activities. If you feel an item does not apply then select NA.

1: Not at all
2: Once a month or less
3: Once a week
4: Several days a week
5: Every day

Word processors (e.g., MS Word, Word Pad, Google Docs)
Spreadsheets (e.g. Excel, Lotus)
Databases (FileMaker Pro, Access)
Desktop publishing programs (e.g., Pagemaker, Microsoft Publisher, Printshop)
Presentation software (e.g., PowerPoint, Persuasion, Google Presentations, Hyperstudio)
Web based publishing programs (e.g., Yola, Ning, Google Cites, FrontPage, PageMill, Dream Weaver)
Graphics programs (e.g., Draw & paint programs, Photoship, FreeHand, Illustrator)
Drill and practice
Games
Simulations
Tutorials
Integrated learning systems (e.g., Josten, Blackboard)
Web browsers (e.g., Internet Explorer, Mozilla, Google Chrome)

Types of Software Used to Complete School Related Activities – Student Use

Directions: For each type of software please select the response to indicate how often your students use the software to complete school related activities. If you feel an item does not apply then select NA.

1: Not at all
2: Once a month or less
3: Once a week
4: Several days a week
5: Every day

Word processors (e.g., MS Word, Word Pad, Google Docs)
Spreadsheets (e.g. Excel, Lotus)
Databases (FileMaker Pro, Access)
Desktop publishing programs (e.g., Pagemaker, Microsoft Publisher, Printshop)
Presentation software (e.g., PowerPoint, Persuasion, Google Presentations, Hyperstudio)
Web based publishing programs (e.g., Yola, Ning, Google Cites, FrontPage, PageMill, Dream Weaver)
Graphics programs (e.g., Draw & paint programs, Photoship, FreeHand, Illustrator)
Drill and practice
Games
Simulations
Tutorials
Integrated learning systems (e.g., Josten, Blackboard)
Web browsers (e.g., Internet Explorer, Mozilla, Google Chrome)